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ABSTRACT

Eighteen international futurists present their views concerning separate major world issues. The book includes a prologue which discusses the optimistic nature of most futurists; an introduction which describes the book's contents; 14 chapters arranged into 3 major parts; an epilogue; and conclusion. In part I, which examines the basic necessities of life, views are presented on what to do about population problems and how to meet the universal needs for food, housing, and health care. Part II provides a variety of perceptions on the major social transformation to a new world order. The authors emphasize that the next era is expected to be one of increased affluence, increased leisure, and a simple lifestyle. Also examined are the future of spirituality, women's role in the new era, and the need for a new world order which is based on cultural ethics and scientific principles. The emphasis in part III is on managing the future. The major elements of the international system are reviewed (economics, technology, energy, business, and government), and scenarios are outlined on how these key areas of the future can be better organized and managed. The epilogue considers the question of where to go from here. The conclusion stresses that the world is small, complex, and crowded with issues and people and that we need to live together harmoniously in a cooperative world. (RM)

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OPTIMISTIC OUTLOOKS

Latest Views on the Global Future
by
A Galaxy of International Experts

Edited by
Frank Feather and Rashmi Mayur

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TABLE OF CONTENTS

		Page
Acknowledgements		1
Prologue		3
The Future: A Welcome Change of Mood *by Harlan Cleveland*		
Introduction		7
From Global Village to Global Cottage *by Frank Feather and Rashmi Mayur*		
PART I		
Meeting Basic Human Needs		17
Chapter 1	Six Billion and Counting *by Rafael M. Salas*	19
Chapter 2	Putting Food on Tomorrow's Table *by Eugene Whalen*	31
Chapter 3	Housing the Future *by H. Peter Oberlander*	39
Chapter 4	Prescriptions for Avoiding Future Stress *by Stanley Lesse*	45

PART II
Transformation to a New World Order 55

Chapter 5 The Great Transition 57
by Herman Kahn

Chapter 6 Transforming the Life Style of Industrial Society 71
by Willis W. Harman

Chapter 7 The Future of Spirituality: Search for Meaning in the Aquarian Age 85
by Marilyn Ferguson

Chapter 8 Women Achieving Power: Evolution, Synergy, Technology and Supra-Sex 95
by Barbara Marx Hubbard

Chapter 9 Achieving a New World Order 105
by Hazel Henderson

PART III
Managing the Future 121

Chapter 10 New Age Economics 123
by W. H. Clive Simmonds

Chapter 11 Technology: Fire in a Dark World 133
by Perry Pascarella

Chapter 12 Getting Over the Energy Crunch 145
by Joseph Barnea

Chapter 13 Business in the Public Interest: Competition and Cooperation Can Co-Exist 157
by Andre van Dam

Chapter 14 The New Face of Global Politics 169
by Aurelio Peccei

Epilogue 175
Where Do We Go From Here?
by Maurice F. Strong

Conclusion 187
Toward a Global Mind
by Frank Feather and Rashmi Mayur

Index 191

6

Acknowledgements

The number of people, organizations, and events that miraculously have come together to make this book possible are too numerous to mention.

Before the First Global Conference on the Future (Toronto, 1980) we were particularly encouraged by Maurice Strong to consider publishing some form of "proceedings". Due to the unprecedented size of the conference program (over 400 sessions with 1000 speakers) this would have been a mammoth and expensive task. Instead, we decided to ask leading spokespersons in a number of important areas to write a chapter for what we anticipated would be an optimistic outlook for the global future. As Harlan Cleveland and Maurice Strong both convey in their Prologue and Epilogue respectively, the Conference itself ended on a huge wave of optimism that the global future does look good if we co-operate to make it so.

It was in this co-operative and optimistic spirit that all of the expert authors of the book have unhesitatingly donated their efforts to produce, in the main, original works. All royalties earned from the book will go towards a special fund for the Second Global Conference on the Future. It is in the same spirit that we initiated the founding of the Global Futures Network, an international breakthrough in co-operative futures and development, which aims to help in the transformation of ideas into action for the global future. This book is part of that mission.

None of this would have been possible if the two of us had not been brought together in the first place. Living on opposite sides of the globe, we were first introduced by Ed Cornish of the

7

World Future Society and finally brought together by that Washington-based organization and the Canadian Futures Society to work on the First Global Conference on the Future.

This opportunity was a unique privilege, particularly since it also endowed us with a great sense of joint responsibility to work for the global future. We have been much encouraged in this adventure by numerous individuals and organizations who have joined with us. We were even more encouraged by the sense of optimi m engendered by the 5,400 souls at the Toronto Conference and we thank you all for being part of this new movement.

We also must acknowledge the invaluable assistance and guidance of those who have played a more direct part in the publication of this book. In particular we are indebted to Kimberly Weichel for her periodic editorial assistance. We also thank those who have typed and re-typed, edited and re-edited the manuscript. We alone accept responsibility for any errors or omissions and apologize to any of the authors for our necessary but severe editing. We believe this has not detracted from their outstanding contributions.

Finally, we acknowledge the unstinting support of our families and friends throughout the production of this book and in our other work.

Our work is just beginning and we seek your ongoing support. We are optimistic that, together, we all can build a global future of which our great-grandchildren will be proud.

Frank Feather and Rashmi Mayur

Prologue

The Future: A Welcome Change of Mood

by Harlan Cleveland

There were more than 5,000 people assembled for the First Global Conference on the Future, a vast intellectual and moral smorgasbord cosponsored by the Canadian Futures Society and the Washington-based World Future Society.

The most striking thing about this gathering of forecasters, professors, politicians, bureaucrats, clergypeople, journalists, healers, bankers, demographers, consultants, evangelists, venture capitalists and other professional dreamers was that most of them seemed to be eagerly looking forward to the future.

Seven or eight years ago, such a conclave would have been a frightening experience. The conferees would have been told that we were running out of food, water, and energy; that the spread and use of nuclear weapons was inevitable; that environmental degradation was irreversible; that growth could not be sustained; that the curve of world population was exponential; that despite all the development aid more of the world's people each year were illiterate, malnourished and poor; that women were still a neglected resource; and that the "me generation" didn't care.

The few dozen Futurists who might have bothered to come to such a meeting would not have felt they could do anything much but cry havoc, predict disaster and sell books.

But in the 1980's the people willing, without a deprecating smile, to call themselves Futurists are numbered in the tens of thousands. And their mood is upbeat, affirmative, can-do. Maurice Strong, the creative Canadian entrepreneur who was the Honorary Chairman of the Toronto affair, summed it up: "The bad news", he said, "is that the world is coming to an end. The good news is: not yet, and not necessarily!"

It turns out that we are not running out of resources, just deficient in imagination about resources.

It turns out that security is not mostly a military problem, that nuclear weapons are too big and clumsy to use in real-world politics. Indeed, the big threat to the human race may not be global cardiac arrest, but a slower and more agonizing paralysis, a palsied incapacity to cope. The scariest image may no longer be the mushroom cloud but the disintegration of governance in a hundred Lebanons, Cambodias, or El Salvadors.

It turns out that the human environment has a constituency, that it is people that make smog and water pollution and deserts and chloroflourocarbons and carbon dioxide; and people can, if they will, control themselves.

One panelist in Toronto presented it as good news that the biggest controversy between Canadians and Americans these days is no longer over trade policy or television or newsmagazines or even oil deliveries . . . It's over an environmental issue, acid rain.

It turns out that a sustainable growth can be managed. But we will have to reject both supergrowth and no-growth nostrums and develop a new economics of human needs and human purposes.

In turns out that population growth is not exponential, but is just another biological S curve. Fertility rates are declining all over the world, the consequence of an unplanned symbiosis of chemicals, women's instincts, development and hope.

It turns out that we can abolish poverty and hunger and that the job can be done by early in the next century if we seriously get to work on it now.

It turns out that women do make an enormous difference as they flood the work force with their energies and step gently but firmly into the back rooms where the boys have been making the policy. (It's evidently both an exhilarating and a sobering experience, this new opportunity for female leadership. One woman who chaired a panel in Toronto with charming decisiveness was congratulated afterwards. "Thanks", she said, "but I don't think I've quite got it yet. I can't yet achieve that female softness that the best male chairmen seem to use.")

It turns out, finally, that the "me generation" does care. Gallup, the delegates in Toronto were told, finds that 87% of American teenagers pray or meditate, and two-thirds of them believe their prayers have been answered.

* * * * * * * * * * *

The self-conscious study of the future is useful to derive, from a comparison of alternative destinies, a strategy for what to do starting tomorrow morning.

The community of futurists has its share of computerized Cassandras and one-issue messiahs. But the best of the Futurists have been immensely influential in hastening this massive change of mind and mood, enhancing this emerging sense that "we the people" can govern after all — and, moreover, in reinforcing this growing conviction that, despite the complexity of life, each of us can make a difference if we try.

The Futurists' favorite cliche these days is "paradigm shift", and with good reason: quite obviously, something very big has been happening in recent years. It's been happening where it has to happen first, in the minds of people at large.

The trouble is that institutions — governments and political parties and corporations and labor unions and universities and establishments of all kinds — don't change as fast as people can change their minds. The so-called leaders always seem to have to be led by the so-called followers. But at least a good many followers are breaking free of the gloom of the Seventies, and that has to be good news.

* * * * * * * * * * *

***HARLAN CLEVELAND**, a political scientist and public executive, has been Assistant Secretary of State, U.S. Ambassador to NATO, President of the University of Hawaii.*

and Director of the Program in International Affairs at the Aspen Institute for Humanistic Studies. In 1980 he became Director of the newly created Hubert H. Humphrey Institute of Public Affairs at the University of Minnesota. He was a Keynote Speaker at the First Global Conference on the Future and penned these remarks as his immediate reaction to the Conference as soon as it had concluded. They first appeared in the **Christian Science Monitor** *(August 5, 1980) under the title "Why Have the Futurists Gone Upbeat?" and are reprinted with permission of the Christian Science Publishing Society, 1 Norway Street, Boston, Massachusetts, U.S.A.*

Introduction

From Global Village to Global Cottage

by

Frank Feather and Rashmi Mayur

A decade and a half ago, the late Marshall McLuhan demonstrated how and why the various electronic forms of communication (radio, television, films and computers) were restructuring society. In his seminal book **Understanding Media: The Extensions of Man**, McLuhan contended that electronic "circuitry" had brought about the return of man to some of his ancient tribal ways and the world had become a "global village".

Many of the residents of this "global village" came from all parts of the world to meet in Toronto from July 20th-25th, 1980, for the First Global Conference on the Future. The theme of the Conference was **"Through the 80's: Thinking Globally, Acting Locally"**. The theme of the event seemed to capture the mood of the times. Most of the delegates came in the belief that the 1980's was a critical decade for decisive action, on a number of fronts, and that such action would have to be initiated from a global perspective.

As Maurice Strong observed in his Closing Address to the Conference (which forms the basis of the Epilogue of this book), the Program presented a great smorgasbord of ideas: "It's like approaching a great table that has everything on it that you ever dreamed of eating — with a small plate!" At the same time, however, Mr. Strong pointed out that the program did in fact "reflect the real world with all its varieties and bewildering complexities and difficult choices."

For this reason it has been difficult to select, from all the available material, that which should be covered in a relatively small book such as this. Within these few pages it is impossible to present a full discussion of all the multi-faceted problems and opportunities now before the inhabitants of the "global village".

We have chosen to cover the major issues and, in doing so, have been forced to leave out many other important areas. Nevertheless, the major issues have been addressed.

As a result of discussions at the Toronto Conference, it became evident that many of the major issues in the world are surrounded by myths of despair and pessimism. The Conference itself ended on a surprisingly high note of optimism that, behind all the so-called problems in the world, there lie all kinds of opportunities for creative change.

We therefore approached leading experts on the major issues and asked them to take a realistic look at these critical areas and to present us with a review of the situation and what could and should be done about them. Each of the chapters in this book examines a separate major world issue. Each is written by a world leader in his or her field and lays out the good news as well as the bad news. But each contains a good deal of optimism. Hence, our title: "Optimistic Outlooks".

Meeting Basic Human Needs

The first four chapters of the book look at the basic necessities of life.

In "Six Billion and Counting", an ominous title, Rafael Salas, the United Nations' population expert, nevertheless discovers signs of hope in a number of facets of the global population problem. First and foremost is his conclusion that population

growth is declining and global population is expected to stabilize relatively early in the 21st century. In spite of the still growing populations in poorer countries, Salas points out that dependency ratios and birth rates are falling fairly fast, life expectancy is being extended, and poverty levels are being raised. He draws out the problems of income disparities and of massive urbanization but points out that "these trends should not drive us to pessimism". Rather, we should begin to plan now so that these problems can be addressed. Calling for global cooperation, Salas points to the progress which has already been made and sees no reason why this cannot continue if we put our minds to it.

Population problems, of course, are closely linked with food. In Chapter 2, Eugene Whelan, Canada's Minister for Agriculture and a prominent member of the World Food Council, states categorically that we have the resources and the technology to feed everyone on the planet. This does not help the 800 million who are starving, however, and he calls for the establishment of a global strategy for increased food production. Whelan cites several reasons for optimism, particularly as a result of the renewed political will being demonstrated by both developed and developing countries.

This same lack of political will is the main thrust of Chapter 3 on "Housing the Future" by Peter Oberlander who was Chairman of the U.N.'s 1976 Habitat Conference. Oberlander dismisses all the gloom and doom about housing shortages as simply a cruel hoax. Like Whelan, he says we know how; it's simply a matter of motivating the political will to do something about the world's housing problem. It is simply a matter of making "housing the future" an international priority and allocating the resources to it.

In examining the subject of health, we have steered away from looking at traditional diseases, although God knows these still cause massive epidemics in many parts of the world. In these areas much constructive action is being taken to eradicate disease — the political will and resources both exist and much progress is being made. Instead, we asked Dr. Stanley Lesse to look at different forms of stress which are occurring in the world. This ranges from stress caused by electronics and computers to stress caused by increasing urbanization both in the developed and the

developing world. In Chapter 4, he examines the impact of change itself, changes in value systems, crowding, limitation of choice, family and sex roles and foresees increased levels of schizophrenia, hypochondria and psychosomatic health problems into the next century. Dr. Lesse nevertheless sees solutions to these problems in the form of good planning and educational preparation for "a post industrial future which could then become a golden age."

Transformation to a New World Order

The next five chapters of the book provide a variety of perceptions on the major social transformation to a new age which undoubtedly is already taking place.

Herman Kahn, the supreme but well-argued optimist, calls this "The Great Transition". In Chapter 5 he fully expects the next era to be one of "increased affluence" and "increased leisure". He does not suggest that we will be free of problems. On the contrary he considers the present turmoil and confusion as quite natural under the circumstances of the major shift which is occurring. The biggest problem of all is seen as a cultural problem in that Western society is in a state of malaise which is quite pervasive. Kahn advocates optimism almost for optimism's sake, pointing out that we are more likely to bring about a better future if we believe it is possible than vice versa. Our best chance for progress lies in the promise of his "Great Transition" itself — and he doesn't see this occurring if we continue to get caught up in "limits to growth", "conservation", and "small is beautiful" philosophies.

Willis Harman, on the other hand, believes that to examine the case for optimism about the transformation we need to look at individual and institutional behaviour and shifting patterns of culture. In Chapter 6, he sees ecology and appropriate technology movements as part of an overall social pattern aimed at deflecting the long-term modernization trend advocated by Kahn. Dr. Harman sees a more simple lifestyle as being completely compatible with Kahn's full and rich life. He provides examples of ways in which this transformation to a new age can be brought about, all of them with their own advantages. In any

event, he points out, growing numbers of people are joining the movement in this direction, searching for the real meaning of life.

This theme is picked up in Chapter 7 where Marilyn Ferguson explores the various aspects of the search for deeper spirituality which is going on in Western society — a quiet, grass-roots movement which is spreading almost as fast as grass fire. She documents the shifts that have been going on in the traditional religions which are being shaken to their roots by a laypeople anxious for reform. People are plumbing the depths of their minds to discover a new level of "knowing" about the reality of the universe and their place in it. In this search for wholeness with nature, people are finding that virtues come spontaneously; that "it is easier to give, to be compassionate". Ms. Ferguson thus demonstrates that God is something beyond the personage of the Sunday School mentality, and sheds light on the liberation we can achieve by escaping the darkness of the old order of our beliefs.

One of the most critical elements in the transformation which is occurring is the role of women. In Chapter 8, Barbara Marx Hubbard discusses the shift in female function from the traditional 'pro-creation' of the species to a new role of 'co-creation', i.e., "the act of consciously participating in the process of evolutionary change". Instead of caring for children, women will 'baby' the future in partnership with men. She sees men and women working together in an evolutionary transformation of this world into a new world in tune with the natural universe. Women, says Ms. Hubbard, will demonstrate a new form of leadership by helping create new organic mechanisms to replace the obsolete patriarchal institutions and technologies which were built by men to serve us through the dying materialistic age.

In Chapter 9, Hazel Henderson asserts that these "keepers of the old order", in their attempts to hang on to power, are leading us through a series of crises. They are hopelessly trying to shore up existing systems instead of opening them up to accommodate the necessary participation that will enable them to adapt to change. Ms. Henderson identifies six transitions which are occurring, half of them energy/resource based and half of them cultural. She calls for a major morphogenesis of society which she maintains will come at the individual level rather than at the

institutional level — "it is always the dinosaur's brain that is last to get the new message". She takes particular aim at the out-dated world economic system and calls for a new system based on cultural ethics and scientific principles that will lead to a new world order.

Managing the Future

The final five chapters review the major elements of the international system (economics, technology, energy, business and government) and outline scenarios of how these key areas of the future can be better organized and managed.

Clive Simmonds (Chapter 10) agrees with Hazel Henderson that "nowhere is the contrast between past and future becoming more marked than in economics". He outlines aspects of a New Age Economics based on complex inter-relationships and dynamic equilibrium rates of growth; concerned with long-term survival and short-term efficiency but based on an equitable distribution of wealth. He astutely points out that the strong economic growth of the 50's and 60's was obtained only at the expense of running down the environment, and that today's chronic world-wide inflation is only a result of inequality of distribution. Simmonds concludes that we need a new system of economic distribution through what he calls the "ripple (or multiplier) effect" of new technology. He sees no reason why this cannot be achieved.

Science and technology, of course, are hot topics and, as Perry Pascarella points out in Chapter ll, pessimism in this area can be an easy game to play — "disasters in the forms of air pollution and nuclear melt-downs are always waiting in the wings". He points out that technology makes us no promises but it does give us the ability to vastly improve our lives. Echoing what was said in Part I of the book, however, he points out that so far we have not harnessed our technology to fight hunger, disease, or urban crime. Those in the affluent North who decry technology, and the economic benefits it can generate, are totally at odds with those in the South who urgently need technological advance in order to solve many of their problems and increase their economic well being. Pascarella shoots down the misconceptions

about technology eliminating and/or dehumanizing jobs. He also argues that the overregulation against risks has slowed down our creative development through technology. Technology, he points out, has become part of our evolution. If it is treated responsibly there is no reason why it cannot help us achieve helpful change in the future.

Another much misunderstood issue is that of energy. UNITAR's Joseph Barnea, considered by many to be the world's leading energy expert, illustrates the necessary combination of economics and technology in order to improve and increase the recovery of energy sources from the earth. He discusses the reasons for the so called energy crisis of 1973 and lays it bare as simply a function of price. Barnea demonstrates that increased prices have now allowed us to discover new energy sources — and that new technology will allow us to develop yet more. He develops a very strong case, built on a list of 46 potential energy sources, that "the misconception that we are running out of energy needs a decent but final burial!" He sees the 1980's as a decade of expanding production and energy surpluses such that the "energy crunch" should be over by 1990. The current oil glut and OPEC disarray bears this out.

The current energy situation has led to much criticism of the oil companies and multi-nationals in general. In Chapter 13, André van Dam advocates a form of "business in the public interest". If business is to be in the public interest, he points out that this still implies private competition but also a great deal of co-operation between business and government. He cites many case examples where this is already occurring and points out the advantages of such co-operation, particularly where large multinationals are operating in comparatively small nation states. It is clearly to the advantage of both the state and the corporation if their planning activities can be aligned. This in turn calls for increased understanding of each other's point of view, effective teamwork, and leadership and governance which is indeed "in the public interest".

In our final chapter, Aurelio Peccei decries the "mess" and "topsy-turvy" nature of international politics and governance. Taking aim at the super powers (who "in particular seem determined to do their best to obtain the worst") as well as at the more

than 100 small sovereign states, the President of the Club of Rome calls for a number of fundamental acts of political will to reverse the present downward global trends. First, politics at the national level must become global in outlook and should involve individual citizens and non-governmental groups. Second, the international system has to be made more governable. This calls for the 120 independent nations of the South to band together in regional and inter-regional communities and begin to speak with one voice. Being fundamentally an optimist, Peccei pins his faith on the belief that "while human stupidity is indeed great it is not so great as to become suicidal". It is the public at large, he says, which will ultimately choose wisely and creatively.

As we stated at the outset of this Introductory Section, this book could not hope to cover all the major issues which should be addressed. We have not looked, apart from references in various chapters devoted to other topics, at developments in electronic technology or space exploration both of which perhaps hold the greatest hope for the future of the "global village". The fundamental subject of education is another which has not been specifically addressed. In this latter regard, perhaps it is sufficient to say that when Robert Theobald posed the question to the Opening Plenary of the Toronto Conference as to "who thinks the present education system is equipping our young people for the future?", not one of 5,400 people raised a hand!

Of course we view all of the subject matter in this book as much-needed educational matter for the future. The First Global Conference on the Future itself was a huge educational and experiential event. It is impossible to sum up all the material presented there. Only a global thinking international civil servant like Maurice Strong would attempt it. Only he could succeed, as he did so well, in covering all the bases and in still capturing the essence of the Conference. It is for this reason that portions of his Address stand as the Epilogue to this book.

After reading these chapters, it will be clear to you that the world is now a much smaller place than even Marshall McLuhan identified. The world has shrunk so small, has become so complex, and so crowded with issues and people, that we no longer live in a "global village".

We are now all living in a "global cottage". And in this small

house we are all learning to live together harmoniously. Indeed there is an abject need for a saner, more co-operative world based on helping each other meet our collective needs. If the opportunities presented by the tide of events (as set out in this book) are taken at the full, we are optimistic that together we can all live happily in our "global cottage" through this age of transformation into the next.

Frank Feather and Rashmi Mayur

TORONTO/BOMBAY

May 1982

Part I

Meeting Basic Human Needs

Chapter 1

Six Billion and Counting

By Rafael M. Salas

The quality of life in the twenty-first century is likely to be heavily influenced by the trends of population growth between now and the end of the present century. The demographic features of world population in the year 2000 are already determined, to a large extent, by trends of recent decades. These features will be even more significantly affected by the pace of demographic transition yet to occur by the year 2000.

Size and Growth Rate

The total world population is expected to increase from 4.3 billion in 1980 to some 6.2 billion by 2000 and is eventually to stabilize at 10.5 billion in the year 2110. This figure is much smaller than those indicated in some studies but is still nearly two and one-half times the number presently living on this globe.

The current expansion of population is unique in our history. To the end of the eighteenth century, the cumulated increase of our numbers amounted to about one billion. The second billion

was added in a little more than one century and the third and fourth billions in the last 50 years. The fifth and sixth billions, by contrast, are expected to accumulate during the remaining part of the century. More billions will almost certainly be added during the twenty-first century before the population will eventually stabilize.

The pace of growth reached a climax in the decade 1955-1965, when a rate of 2 percent per annum was recorded. This was more than double the average rate of world population growth during the first half of the present century and four times the estimated average for the nineteenth century. We have entered an era of population "giantism". By 2000, a number of countries will have to deal with three or more times the size of population they had in 1950. For instance, in 1950 only four countries (China, India, the United States and the USSR) had populations exceeding 100 million. By the year 2000 there will be eleven such countries. Not only that, by the year 2000 China and India alone will have combined populations close to 2 billion, whereas the entire world population was only 2.5 billion in 1950.

Fortunately a significant slackening in growth rates is indicated by the United Nations assessment conducted in 1980. While the global population is still increasing at relatively high rates by historical comparison, this latest projection indicates a continuing gradual reduction of the growth rate to 1.5 percent annually by the year 2000.

Concentration on Poorer Countries

Most of the expected increase in the world population will take place in the same areas which have already experienced the largest increases in population between 1950 and 1980.

Unfortunately, these countries and regions are the poorest areas of the world, areas which feel the greatest need to balance resources and population growth and are the least able to achieve this end.

In 1950, about two-thirds of the world population was accounted for by developing countries and the proportion is expected to increase to 75 percent in the 1980's and to 80 percent by the year 2000. Africa's share of world population is projected to

increase from 11 percent to 13 percent and Latin America from 8 percent to 10 percent, while Asia (excluding China) is expected to decline from 28 percent of the world's population in 1980 to about 23 percent by the year 2000. **About 92 percent of the projected increase in the world population by the year 2000 will thus occur in the poorer countries.**

Age Composition

Accompanying the spectacular changes in size, growth and distribution of the world population, there have been profound modifications in age composition. The most significant implications of a given age structure of a population are essentially socio-economic in their nature: the level and composition of aggregate demand in a society, the scale and type of educational institutions, the magnitude and form of employment opportunities, the type and scale of health care, and the order of economic dependency in the population are only a few examples.

Generally, a high rate of population growth is the result of a high level of fertility and a moderate to low level of mortality.

These conditions initially generate a very young population in that the proportion of children is very large and the proportion of older people is very small. As the population ages, there occurs a greater reduction in the proportion of children, a smaller expansion in the proportion of the aged, and a considerable increase in the proportion of adults in the intermediate range of ages.

Tremendous variations exist between developed and developing countries regarding their age structure. Most developed countries had in 1980, for instance, about 25 percent of their population under the age of 15 and a little over 10 percent beyond the age of 65. By contrast, almost 41 percent were adults and a small residual were older people. By the year 2000, the developed countries will experience a higher addition of older persons and a further reduction in the proportion of children.

The age structure of developing countries by the year 2000 will be slightly more favourable than in 1980. Not only will there be a reduction in the proportion of children but also there will be an increase in the proportion of adults in the population. The net effect will be a welcome reduction in the child-dependency ratio

in developing countries from the currently high 0.75 to around 0.56 by the year 2000.

Birth Rate

The latest assessment of population trends by the United Nations undoubtedly signals an accelerated decline in world fertility. In 1973 the United Nations estimated an annual average growth rate of 1.95 percent for the 1975-1980 period. This rate has been successively lowered to 1.81 percent by 1978 and to 1.43 percent by 1980.

These are clear signs of a decline in the birth rate. Recent studies have confirmed that reductions in fertility have not been restricted to smaller island populations as was assumed before, but have occurred in areas involving far greater numbers of people and national entities, under an array of diverse regional and cultural circumstances. One can easily document a reduction of at least twenty percent in fertility during 1965-1975 in about twenty countries accounting for about forty percent of the population of less-developed countries. It includes the geographic regions of the Caribbean, Temperate South America and East Asia, in such countries as Colombia, Costa Rica, Malaysia, Mauritius, Singapore and Sri Lanka.

Reduced marital fertility and delayed age of marriage have been the main contributing factors. The underlying socio-economic determinants have been many and complex. They include, in addition to family planning factors such as education of women, greater participation of women in nontraditional roles of economic activity, greater access to health care and the subsequent decline in infant and child death rates. All have been found to influence the level of birth rates and have played a part in their decline.

Given the multiplicity of the factors involved and the complex nature of the interrelationships, it is not possible to isolate the contribution of each of these factors to the decline in birth rates. Life is, after all, based on the balancing of a number of forces. However, it is suggested that the human race possesses an innate capacity for adjusting the growth of its numbers, and when pressure on resources reaches the breaking-point a societal adjustment in population is bound to take place.

While the reversal of the trend in birth rates marks the beginning of a new epoch in the history of world population, it is essential in order to avoid falling into a state of complacency to point out certain caveats to this situation. First, the patterns of decline noted have been very uneven among countries and regions; second, which is even more important, the decline in birth rate, however significant it might be, should not obscure the reality that it is occurring at an already very high level. This has important implications in terms of employment, provision of basic needs and the carrying capacity of the global system.

Women

It is impossible to think of any aspect of life — involving the local community, the nation or the world as a whole — in which women do not have a role to play. If the goals of development are to be achieved and the full promise of the future to be realized, then women must be able to participate fully, equally and responsibly in the tasks that lie ahead. Population and development programmes should enable women to broaden the choices which affect their personal lives and economic activities, and provide them with increasing access to decision-making processes.

Life Expectancy

The progress made in the betterment of health and the reduction of mortality rates in the world's less developed regions has been outstanding since the Second World War. The average expectation of life at birth for both sexes in these regions increased by almost 11 years between 1950 and 1975 to 53.4 years. It is a safe guess that the gain during this 20-year interval was at least as great as what had been achieved in the less developed regions during half a century previously. A small but substantial gain took place also in the more developed regions, where much higher levels of expectation of life had already been attained before the Second World War.

The gap between life expectancy at birth for more developed countries and less developed countries, though narrowing, is still wide at about 18 years. Life expectancy in Africa, South of the Sahara, is lower than in any other major area of the world. Life

expectancies of 40 years are still found in several countries, including Burundi, Ethiopia, Somalia, Angola, Chad, Gabon, Gambia, Guinea, Mali, the Niger, Senegal and Upper-Volta, among others.

A large number of developing countries still suffer from widespread infectious and parasitic diseases, poor health and malnutrition which produce high rates of infant mortality and lower life expectancy. These morbid conditions have adversely affected the productivity of the working population. The historical experience of developed countries indicates that declines in birthrate come about only after increases in life expectancy have occurred.

Poverty

The growth of production in the world economy continues to outstrip the rapid growth of population, and average levels of per capita income continue to rise in less developed countries as well as in more developed countries. However, the picture of progress is dimmed by setbacks and by stagnation. Retrogression and gross inequality persist in the distribution of income and wealth among nations. It is ironic that population growth is lowest in areas of affluence and is the highest in areas of poverty. A likely consequence of this will be a further increase in the numbers of the poor, a worsening of the depth of deprivation, and a further widening of the international disparity in incomes.

Population variables and socio-economic characteristics interact with one another. Trends in one have significant implications for trends in another and the interactions serve both as points of stress and leverage.

Food Link

An important factor which has a direct bearing on mortality as well as the levels of health care and nutrition in the developing world is the supply of food. The growth of the population and its regional distribution between 1930 and 1975 have already brought about a major transformation in the world food economy. While world grain output nearly doubled between 1950 and 1975, per capita grain production increased by only one-third

during the same period. Regions which were net exporters of grain during the 1930's have become net importers of grains in the 1970's, partly reflecting those changes.

The United Nations Food and Agricultural Organization has estimated that the number of malnourished people in the less developed countries rose from about 400 million in 1970 to 450 million in 1973. They constituted about a quarter of the population of these countries. However, even under the optimistic assumption that the proportion of undernourished is halved by the year 2000, it is apparent that their absolute number may still remain around 450 million in the less developed countries.

Food has become such an important item in the world that its possession is considered crucial as an instrument of foreign policy. Given the constraints imposed by a paucity of investible resources on increasing the growth of grain production in a number of countries, this role of food is likely to gain even more significance by 2000. Thus steadily rising productivity in agriculture, in terms of both output per worker and output per hectare of land in use, will be an essential requirement for satisfaction of basic food needs and the achievement of other social and economic development goals in the developing countries during the critical decades ahead. (See also Chapter 2 for more detailed treatment of this issue.)

Education Link

The progress in education for the peoples of developing countries will be one of the major determinants of the future trends of fertility, mortality, and population growth. Evidence has shown that when education of women reaches some critical level, it becomes one of the strongest promoters of the transition to low infant mortality and low fertility in developing countries.

Unfortunately, rapid population growth bears heavily on the problem of advancement of the developing countries in education. Given the amount of educational investment that a nation is able and willing to afford, the rate of population growth in the school-age groups has much to do with determining the pace of advance towards national goals for education. Furthermore, given the youthfulness of age structure and the very low levels of

literacy and educational attainment in their populations, the less developed countries are facing formidable challenges in their efforts to provide education to their population.

The spectacular efforts needed to achieve the desirable goals of universal primary education in less developed countries by the year 2000 can be gauged by required rates of increase in school enrollment ratios — an increase of 169 percent in South Asia and an increase of 300 percent in Africa.

Employment Link

The number of workers who contribute to the supply of labour for the production of national incomes grows more slowly than the population in the world as a whole, and so the ratio of the world's income producers to the number of consumers diminishes.

Population-employment linkages are many and complex. However, it is fairly obvious that there are tremendous differences in the socio-economic correlates of employed persons as compared to unemployed persons. Fertility, mortality, propensity to migrate, capacity to earn income, and social status are all influenced by labour force participation rates and employment ratios.

In spite of this over-riding significance of employment for demographic behaviour, there are great difficulties in reducing both the levels of open unemployment and hidden under-employment in the less developed countries. By the year 2000, there will be over 660 million more persons in the labour force needing jobs and income. If we add the currently unemployed and the underemployed in such countries, the number of new jobs to be created by the year 2000 will be much larger. The countries of the Third World presently lack both the resources and the knowledge of the strategies which could deal with this emerging employment crunch.

Migration and Population Redistribution

An important aspect of population growth in the less developed countries has been the inability of employment to keep pace with the population growth, leading to considerable migration of populations, both internally and between countries or regions.

Within the developing countries themselves, labour migration and the movement of population have been from rural areas to mainly urban areas.

International migration in recent times has flowed predominantly from poorer to richer countries, within and between less developed and more developed regions of the world, and especially towards countries experiencing rapid economic growth. International migration has played a major role in the recent economic development of the oil rich countries in Northern Africa and South Asia. It is estimated that the number of immigrant workers in those countries is now well in excess of two million. Remittances by these migrant workers to their home countries amount to more than a billion U.S. dollars annually and, for many receiving countries of those remittances, they account for more than twenty percent of their total imports.

Urbanization and Metropolitanization

The rapid growth of cities, especially in developing countries, has been conspicuous during the past twenty-five years. It is estimated that the proportion of population residing in urban areas in the world has increased from 29 percent in 1950 to 41.3 percent in 1980 and is expected to increase to 51.3 percent by 2000. The differential between less developed and more developed countries is quite significant. The proportion of urban population in developed countries is expected to increase from 30.5 percent in 1980 to 43.5 percent by 2000. In the developing countries it is likely to increase from 70.2 percent in 1980 to 78.8 percent by 2000. The number of people resident in urban areas in the less developed regions nearly trebled during 1950-1980.

The expected growth in urbanization in the less developed countries is the result not only of the natural increase in urban population but also of massive migrations of populations to these areas in search of employment. It is estimated that the largest cities will grow more rapidly than the smaller cities and some of these are likely to reach magnitudes which are totally unfamiliar to town planners.

There were only six cities with populations over five million in 1950 and their combined population was only 42 million. This

number has already risen to 26 cities with a combined population of 252 million. By 2000 there will be 59 such cities with an estimated population of nearly 650 million. Projections for a few major cities indicate the magnitude of these changes:

— Tokyo-Yokohama, with nearly 20 million now, may have 26 million in the year 2000.

— Greater Cairo is projected to increase from 8 million to 16 million by 2000.

— Mexico City metropolitan area, with 14 million in 1980 may have 23 million by 2000.

Such unprecedented expansion of cities will have far-reaching consequences. There is not only an explosion of population in these areas but at the same time they also are experiencing an implosion. The city centres are unable to handle such large numbers of people and urban facilities are on the verge of collapse in some of these urban areas. In fact, the problems created by the failure of the transportation systems, the cost of housing and higher wage costs are leading to a relocation of offices and firms away from such city centres, which will in turn only increase the difficulties already faced by such areas.

It is now widely recognized that national policies and programmes specially geared to the managing of problems of crowded cities and which reverse the flow of population, not by compulsion but by developing "growth poles", are a necessity to deal with these problems of metropolitan growth. The development of underpopulated regions by providing social overhead facilities such as education, health, transportation, housing, water, irrigation and, above all, employment opportunities to attract settlers is becoming an important policy instrument to divert the influx from the metropolitan centres.

Conclusion

The pressure of population is forcing the developing countries to exploit their natural resources to an extent which is producing not only severe environmental problems but is eroding their future production potential. The excessive reliance on chemical fertilizers to increase agricultural and food production, the over-grazing of pasture lands, accelerated felling of trees to meet fuel

requirements, the phenomenon of over-urbanization, the faster depletion of nonrenewable sources, among others, are all factors which have relevance for the future development of developing countries. These factors will lead to a deterioration in natural soil conditions which will reduce future output from the land, to the emergence of semi-arid zones or deserts, and to a deterioration in urban living conditions as a result of the inability to provide for housing, education and health facilities to keep pace with urbanization.

Solutions to these problems can be found. But only if we link population programmes with development strategies by which it will be possible to integrate an optimal resource use pattern with the quality of the environment. These conditions will undoubtedly have an effect on global stability and peace, and it is desirable to fully consider the implications of population dynamics for the future world order. The world is becoming increasingly more integrated and interdependent as never before.

The nature and magnitude of population challenges and their socio-economic manifestations should make clear the need for integrated solutions to such challenges. It should also be clear that problems associated with world demographic trends have implications for countries both developed and developing, rich and poor.

However, these facts should not be allowed to push us into a pessimistic position, but help us to anticipate the problems and face reality boldly so that the increased demands on the planet's resources in the not so distant future will already have been taken into account in shaping national policies and programmes.

Thus, the need for global co-operation in order to resolve population and related issues is urgent. The Brandt Commission Report and the U.S. Global 2000 Report called in unequivocal terms for immediate action to bridge the gap in population and development aspects between less developed and more developed countries.

The integrated package of policies and programmes to alleviate the problems associated with population-development issues could comprise the following strategies:

1. Comprehensive population policies and programmes are needed. Population planning needs to become a more effec-

tive arm of overall development planning, not only as an active change agent in its own right, but also as a resource closely attuned to the realms of policy for actively affecting development. Several countries have indeed begun action along this line, but the challenge is to universalize the approach in all countries.

2. International commitment and support to activities identified within the framework of the United Nations New International Development Strategy.
3. A renewed effort on and a much greater support to developing countries in their implementation of goals, policies and programmes in the population and development sectors.

Much progress has been made. Much more is possible if only we put our minds to it.

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Chapter 2

Putting Food on Tomorrow's Table

By Eugene Whelan

The subject of food for a hungry world has become one of the greatest concerns in my life. My primary job is to maintain and build the agriculture and food sector of Canada. But after doing this job for ten years, I am convinced that Canadian or any other national food production must be seen in a global context. At the same time, it is what we do locally that will count.

It is time that some clear ideas emerged, with everyone better understanding where they fit in the fight against hunger, and how they can help others who are less fortunate.

The Facts

Today there are more people hungry than ever before — 800 millon people, one-fifth of humankind, going hungry every day. Thousands of people are dying every day — dying in wretched conditions that we can hardly imagine.

Look at some figures:

1. Half of the undernourished people on earth are

children, who, as a result of malnourishment, suffer permanent physical and mental damage.

2. One-third of all children born alive die from malnutrition and disease before the age of five.
3. Every year, a quarter of a million children go blind due to Vitamin A deficiency.

Sure, we hear those numbers, and we blink back tears, and we shudder a little bit. But then the feeling passes, and we are back in our own affluent cities, surrounded by all the fine things, the peace and happiness.

Food Aid

What are we actually doing to improve the world's food supply?

To try to end hunger and starvation is the goal of the World Food Council, established after the World Food Conference in Rome in 1974. It was set up as a Ministerial body — so that political representatives could gather and make decisions about food aid and food strategies so that they could make them stick at home and in the United Nations agencies.

The present hodge-podge of food aid organizations lacks co-ordination. These organizations are, for the most part, run by professionals who may know all the facts and figures about the world food problem, they may have the mandate and the wherewithal to do something about it, but nobody with clout has managed to co-ordinate their work and check their effectiveness. Instead, they use their resources and manpower to play political games and fight one another.

That's why the World Food Council is such an important body.

For example, we were in a position, at our recent meeting in Tanzania, to pass a resolution ordering a study of all the 20-odd agencies involved in food aid in the United Nations. Hopefully, this will eventually lead to less duplication and empire-building.

I don't mind saying flat out that I am not satisfied with the current state of affairs.

One agency, however, that deserves special note is the World Food Program. The World Food Program is distributing more than one billion dollars worth of aid per year. It makes sure

that it's getting to the people who need it most — the men and women who are working to develop their country. Only part of the food is for emergencies, about 10 percent. They are so good that Canada puts about half of its $190 million annual food-aid into that program. The other half goes out mainly in bilateral aid, and even there, half of the aid is administered by the W.F.P.

Toward a Global Food Strategy

But I don't want to give the impression that the world food problem will go away if we simply throw money at it.

I firmly believe that the developing countries must produce much more of their own food, and that the key is to first develop a strategy for increased food production.

In 1980 the Canadian government created a special $2 million fund to help developing countries establish such strategies.

Several countries are now drawing up strategies (with help from Canadian, American and European experts) which will provide a map for the future in those countries. They will also provide donor countries and institutions like the World Bank with a better idea of how their money will be used by a developing nation.

At the World Food Council, I have been pushing for the creation of a global food strategy so that the individual nations will have a better idea of how they fit into the world scheme of things. We should be able to help these countries not only to improve their domestic food supply, but also to recognize and develop those crops which offer the best export potential.

Agriculture or Armaments?

Maybe when we get this kind of global food strategy firmly and clearly in our minds, we will see governments putting more of their manpower and money into agriculture, rather than armaments. Something like $550 billion is being spent on armaments a year now — over $100 for every man, woman and child on Earth. And developing countries themselves sometimes spend 75 percent of their budgets on arms.

Obviously, the money and the manpower is going into the wrong areas. **Sometimes it makes me wonder if people would rather fight than eat.**

Enough Food for Everyone

Given the collective will, however, we *have* the resources, and the technology to feed everyone.

This is what the OECD said about world population and food production in its 1979 study called **Interfutures.**

> "Keeping to the hypothesis of a world population stabilized at about 12 billion in the year 2075, and assuming that diets in the developing countries approximate the traditional diets of their middle-income groups, the resource base will be adequate to sustain that population".

The OECD's economists expect that even with a world population of 12 billion — three times the present level — we will have the resources on this planet to feed everybody.

Food is going to be more expensive than it has been in the past. More land will have to be cleared, especially in Africa and Latin America. More irrigation will be needed. New technologies are going to have to be found to allow people to farm in those areas without destroying the environment. We'll need more fertilizer, chemicals, and new crop varieties.

We will probably see less cropland devoted to feeding livestock, and more to cereals for humans. In addition, we will probably see the use of new biological processes to create foods such as single-celled proteins. That may not sound appetizing, but it will help feed us all.

Trading Vampires

The developed countries can rightly be accused of not doing enough to encourage trade with the developing countries. Between 1948 and 1976, world trade increased sixfold, but the industrialized nations are basically trading with each other. Eighty-six percent of Canada's trade is with other members of the

OECD. Sixty-two percent of the United States' trade and 73 percent of the European Common Market's trade goes the same route. And some 55 percent of the trade of centrally-planned economies is with themselves.

There is some move towards increased trade with developing nations, but there's still a long way to go. Some tariff walls have been lifted, through the GATT negotiations, and so on. But there are other, less visible walls too, such as governments ordering their people, their industries, their processors not to buy from this or that country. Or they have phony inspections, government orders, and overly strict regulations to stop the flow of imports.

While these kinds of invisible barriers are hard to remove, perhaps they can be reduced by publicizing them — like exposing vampires to the light.

Who are these vampires? They are the international traders who go into a developing country and get them producing something that they can sell somewhere, anywhere, at a big profit. These dealers don't give a damn about the welfare of the country they're exploiting; they are only interested in making a "quick buck". Meanwhile, these countries aren't producing the things they really need — the food to feed themselves and products they can provide for export.

If there were some kind of global plan that identified those things, it would form the basis for lasting international trade. In the process, it would bring a lot of these countries out of poverty.

It is no exaggeration to talk about vampires when you look at the world food situation; when you think of children dying, or growing up blind or retarded simply because they didn't get enough food.

As Arturo Tanco, Head of the World Food Council, says: "We enter the decade of the 80's with the grim realization that the world food situation is deteriorating and a major crisis looms ahead".

Developing countries which were once exporters of grain now have food deficits in the order of 80 million tonnes, and the World Food Council estimates that the Third World will increase its imports to a staggering 125 to 145 million tonnes by the year 1990, compared with just five million tonnes in 1950.

Signs of Hope

But Mr. Tanco also sees signs of improvement ahead. He points to a renewed political determination on the part of world leaders for a stepped-up collective assault on hunger.

Consider these signs of improvement since 1974:

— The World Bank has tripled its lending to the food and agricultural sector.

— The International Fund for Agricultural Development was created. And for the first time, developed and developing countries joined together and put up a combined $1 billion. It is significant that the OPEC nations made a major contribution.

— Improved technology and new crop varieties now allow for doubled or tripled crop yields in the tropics and sub-tropics where hunger is most widespread.

— The United States Presidential Commission on Hunger has recommended that the U.S. make the elimination of hunger the primary focus of its relationships with the developing countries.

— The European Parliament has made the problem a top priority, spurred in part by the excellent report of Willy Brandt's Commission.

So you see there is some reason for optimism both in the financial assistance that is being brought into the picture, and by the renewed political will of developed and developing countries themselves.

Individual Action

But I can't stress too strongly, that the will I am referring to starts with individuals — "Thinking Globally, Acting Locally". When individuals start to really do something about the world food problem, that's when things start to happen.

It reminds me of the farmers from Western Canada that I met when visiting the big wheat farms that the Canadian government is helping to develop in Tanzania.

These Western farmers left their comfortable homes and

went to live in the same quarters as natives, to eat the same food and to sweat all day in the fields alongside these people from the other side of the world.

They were there because they knew how to grow life-giving wheat, how to operate the machinery, how to tend the crops. And they knew what it meant to recognize strangers as fellow human beings, sharing the same time on this Earth. What's more, they knew that there was something wrong about a situation where it only takes eight minutes in Canada to make enough money to buy a dozen eggs, while in Tanzania it takes the wages of three days to buy that same dozen. I cried when I saw the work that those Prairie farmers and my department's scientists were doing there, near Basotu in Tanzania.

I only wish there was more of that kind of work going on in all developing countries. The challenge is to all of us to do whatever we can to see that it does.

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Chapter 3

Housing the Future

By H. Peter Oberlander

Some people claim that housing the future is bleak. That all current statistical indicators spell gloom and doom for the necessary living and working space for the growing population in the cities, towns and metropolitan areas of most of the world. That more and more people are crowding into less and less space in the existing settlements regardless of current size and apparently regardless of socio-economic or political circumstances. Yet others claim that we have become immune to forecasts of chronic housing crises, endless traffic snarls, overused parks and run-down utilities and public services. We are therefore told we have to reduce our expectations, lower our standards of space, our standards of services and our anticipated satisfaction with nature's environment.

My answer to the foregoing claims is "Humbug!" It is a delusion, a hoax.

We **know** how to house everybody but we have failed to do so. We **know** how to build freeways but have merely extended travel time and compounded congestion. We **know** how to dispose of waste but have merely polluted our rivers and lakes. We **know** how to organize public action but we have ended up with

swollen bureaucracies. We **know what** to do and we **know how** to do it. We even have the collective resources.

Lack of Political Will

Why is there not more progress? Why is success eluding us? There are two interdependent reasons. The first is a lack of political will; the political will to act through established or new institutions has been weakened and quite often has ceased altogether. Adequate affordable housing as a social necessity and collective right has declined in importance. It is no longer a priority on the list of priorities. This decline in importance and the weakened political will to commit governmental machinery to achieve appropriate housing satisfaction is true for most nations and across the globe internationally. The second reason relates to the first. Most governments locally, nationally and internationally are not willing to allocate resources to housing commensurate with established policy goals or proclaimed objectives or even well-established public resolutions and legislation.

The future appears to become an impoverished public domain amid growing private affluence. Nowhere is the weakened political will and the lack of resource commitment more evident than in a review of accomplishments since Habitat '76 and the implementation in the Vancouver Charter.

Habitat Recommendations — 1976

At the conclusion of the U.N. Conference on Human Settlements, Habitat '76, the 140 assembled nations unanimously proclaimed a series of wide-range resolutions. The Conference recommended a programme of national action and international co-operation. The recommendations were well-articulated, extensively debated and ultimately subject to consensus agreement and vote. For the first time, a majority of nation states of the world agreed on what ought to be done and, in a political sense, committed themselves to following through within their national institutions and through their participation in international agencies. Why did the world meet in Vancouver and why would the nations of the world pass elaborate and explicit recommendations if they were not willing or committed to implement these resolutions?

The recommendations dealt with a variety of related general topics. It was agreed "all countries should establish as a matter of urgency a national policy on human settlements embodying the distribution of population and related economic and social activities over the national territory". Beyond this general exhortation, the governments agreed on the concept of allocation of resources to achieve settlement policies and strategies. They agreed "that the improvement of quality of life in human settlements must receive higher priority in the allocation of conventional resources which ought to be carefully distributed between the various components of human settlements; it also requires the planned use of scarce resources and the mobilization of new resources, in particular human capacities".

The Vancouver Charter included a group of detailed recommendations on settlement planning and on shelter, infrastructure and services. Perhaps the most significant ones focus on shelter broadly defined as "the super structures of different shape, size, type and materials built by people for their security, privacy and protection from the elements and for their household singularity within a community". It also linked the production and distribution of shelter with the conservation and efficient utilization of energy. Furthermore, it urged all nations in choosing alternatives for shelter to address themselves to the social and environmental costs and benefits involved, including that of future management, maintenance and operations as well as capital costs. Water supply and waste disposal, together with prevention of pollution, were covered in a variety of recommendations as was the need for the development and implementation of recreation facilities.

Undoubtedly the most contentious issues and the most heated debate surrounding the resolutions at Habitat '76 dealt with items concerned with land, its unique nature and the crucial role it plays in human settlements. Recommendations in this category, perhaps more than any other centred around national and regional differences. Yet, after considerable debate, it was possible to find common ground in urging national action on land as a scarce resource "whose management should be subject to public surveillance or control in the interest of the nation". It was agreed that "change in the use of land especially from agricultural to urban should be subject to public control and regulation". Land

as a unique resource clearly attracted the most controversial discussion when considering land as a marketable commodity as distinct from a social resource. Is land to be bought and sold like any other commodity or is it considered to be a common resource of exceedingly limited supply subject to an almost infinite variety of uses?

To the surprise of many, all member nations attending Habitat '76 agreed on recommendations dealing with excessive profits resulting from increase in land values (due to development and change) and saw taxation as only one of several powerful tools to redistribute to the public at large the benefits of the unearned increases in land values.

Outcome? — Establish a U.N. Commission

Unfortunately, the record of implementing all these recommendations is thin and unconvincing. It was central to the success of the Conference that it should lead to continuity in its administrative and professional structure which in turn would be able to monitor each nation's success or failure to respond to the Vancouver Charter. After nearly two years of discussion throughout the U.N. system, the U.N. formed a Commission on Human Settlements composed of 58 member nations selected on the basis of equitable geographic distribution. This Commission is now charged with providing continuity and also supervising the Human Settlements Secretariat which serves as a focal point of human settlement action and co-ordination within the U.N. system.

The Commission's Executive Director has pointed out that programmes of human settlement development and improvement could contribute significantly to some of the historic goals of Habitat '76 in five ways:

1. It is in the provision of housing, infrastructure and services, such as water supply, sanitation, health, educational and recreational facilities, that the goals of social and economic development take concrete expression.
2. That the development of human settlements is a prerequisite for the growth of employment in many

sectors of the community and that there is in most developing countries a positive correlation between economic development and urbanization.

3. That the role of human settlements as a direct generator of employment (and that settlement-building investment in infrastructure, services and shelter) can have a very high economic yield and important social benefits.
4. That settlement planning is a resource allocation tool based on the perception that decision-making concerning human settlements involves the balancing of resource-allocation demands for economic, social and physical development programmes.
5. That efficient settlement planning should be directed towards the goals of conserving energy and economizing on depletable fuel resources.

Vague Outcomes

Unfortunately (again), the decisions of the Commission on Human Settlements' Third Session hardly took notice of these five modest and generalized goals. In particular, none of them found reflection in the agreed upon work programme for the U.N. Centre for Human Settlements or for the medium or long-term plan for the Centre during the 80's. The 1984/89 medium-term plan directs the Executive Director during that period "towards solving the problems and priorities of the developing countries with emphasis on meeting the needs of lower income populations".

It is hard to find fault with these generalities. On the other hand, it is hard to take heart with these objectives as leading to practical and speedy solutions to urgent problems that have been well researched and extensively debated. These generalities and the discussions covering these points reveal the vagueness of the U.N. Commission's goals and the strong emphasis on "process" as distinct from "product".

There is little in the work programme that raises our hopes or appeals to our hearts about solving the crises of housing or improving any other well-established human settlement prob-

lems. One is clearly left with the impression that concern for the bureaucratic structure, process, and procedure took precedence over dealing with product requirements or even the most urgent requirement of establishing priorities. There are no targets. There are no priorities.

Consequently, very little achievement can be anticipated and what little will be accomplished cannot be measured against what ought to have been done for lack of targets and priorities. The work programme of the Commission remains vague; its instructions to its staff at the Centre were ambiguous and little effort was made to build on the political consensus of Vancouver, let alone to anticipate the future and deal with it resolutely and courageously. The Commission, representing 58 nations out of the U.N. Assembly, reflects concerns but no commitments, a strong belief in process, and little consensus on product or priorities. The result will be modest achievements without effective accountability; this reveals the lack of political will that permeates the international arena to deal with the urban future.

Time for Action

The future will still have to be housed. The rapid change in settlements throughout the world will not wait upon yet more conferences and further resolutions.

In most communities, local or national, housing needs are well-known and the resources to meet these needs are available. Collective choices are no easier than individual choices. Asserting priorities requires conviction and the will to implement policy decisions. Housing the future requires political courage and commensurate choices based on agreed-upon priorities. Meeting the needs of the future does not depend on more research, more service or more analysis. It also requires little further technological innovation. It requires the commitment of governments at the local, national and international scale to choose housing the future as a priority and devoting the resources to its achievement. We know how — it's simply a matter of doing it.

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Chapter 4

Prescriptions for Avoiding Future Stress

By Dr. Stanley Lesse

One may logically expect that the sources and types of mental stress that will prevail in the developing Post-Industrial Era will be dramatically different from those of the Agricultural and Industrial societies.

Agricultural Society

The Agricultural Era was characterized by totalitarian tribal chiefs, feudal lords and divine right kings. The individual gave up his or her rights to the leader in return for an unquestioning, paternalistic type of protection. Religious philosophy justified and even extolled physical and mental hardship with promises of compensation for today's sufferings in a "life-after-death". The family structure was primarily in the form of a joint family system. Women were chattels of their physically stronger husbands and spent most of their adolescent and adult lives in drudgery or as producers of babies. Neurotic and even deviant psychotic behaviour was tolerated and often concealed within the extended and joint families. Priests and medicine men were consulted only if a

psychologically ill patient's behaviour seriously disrupted family routine. "Therapy" in these instances took the form of exorcisms, torture, imprisonment and chaining.

Industrial Society

The economic needs of the developing Industrial Era spelled the death knell to feudalistic economic rigidity and divine right totalitarianism. Capitalism became the dominant economic philosophy. This, in turn, stimulated the birth of the middle-class society which was in turn administered by a new type of democratic-republican form of political structure. Myriads of people left the land to search for greater material security in the city. Education enhanced the individual's awareness of himself, of his own innate worth and dignity.

As men became more educated they wanted wives who were more knowledgeable. In turn, this led to a change in the traditional patriarchal family structure. Indeed, by the second half of the twentieth century, a matriarchally organized society was developing in large American cities, a society in which the woman was becoming the dominant figure in the home. The joint family of the agricultural period gave way to the nuclear family. People gradually advanced from a pre-occupation with basic material needs necessary for survival to a worship of material objects and a fixation on luxuries, with luxuries gradually being considered necessities.

Psychological illnesses in this era reflected and continue to reflect the mechanistic, materialistic, crowded society in which they were spawned. Irrational and impulsive behaviour became prevalent, reflecting the premium that was assigned to detailed intellectualization and organization.

A sexually ignorant and frustrated society witnessed an excess of psychosexual disorders. Sociopathy increased in frequency in a complicated and crowded culture that demanded severe policing restrictions in highly concentrated urban communities.

Post-Industrial Society

The Post-Industrial Revolution has been characterized, thus far, by a progressively accelerating rate of social, economic, political, demographic and technological change. Above all, it has been

dominated by automation and the initial effects of computerization. Available knowledge, not to be confused with wisdom, is now doubling in less than ten years. By 1990 it may double every five years, and by the end of this century the total fund of information may increase two-fold every year.

The Democratic-Republican middle-class system of government that dominated the Industrial Era in its "salad days" is gradually fading. Many entrepreneurs have long since succumbed to the huge hierarchically-ordered manufacturing and business organizations which in their ultimate form exist as multinational conglomerates.

Automation has become an integral force in our current world and complete computerization of many basic and secondary industries is not far behind. Fewer and fewer persons will be required to produce more and more. Computers, in all likelihood will replace not only unskilled labour, but many whom we now consider to be highly skilled technicians.

Computerization in itself is bound to have a profound impact on the economic as well as the philosophical aspects of the post-industrial revolution. Our traditional source of pride, security, status and even much of our pleasure has been work-dependent. The new era of anticipated "forced" leisure poses a challenge of enormous proportions.

Future Sources of Stress

In great measure, future stress will be greatly determined by the fact that the group ego will supersede the individual ego in importance. The most significant psychological difficulties will probably be due to poor group maladaptations and peer rejection.

Broadly viewed, the sources of stress and the eventual psychological disorders that are likely to occur in the future society must be seen in the context of the excesses and inadequacies that may result in the developing post-industrial society. New needs, new value systems, and new goals (some of which may be dramatically different from those that were considered commonplace during the agricultural and industrial revolutions) are evolving. As we advance into the increasingly group-oriented, more crowded, post-industrial future, some values that were positive in the past may begin to take on negative connotations.

(a) Rates of Change

In great measure, the psychological problems of the future will change to cultural, demographic, and technological change that will increase in crescendo fashion during the transitional period of the next generation or so. When change occurs too fast, severe stress can result. It is likely that the current rate of change will continue to accelerate during the coming decades. This pattern in itself will be a major source of psychological stress by the beginning of the twenty-first century.

(b) Value Systems

Psychic difficulties will also stem from shifting value systems. Stress could occur as a result of:

(1) rigid adherence to old values;

(2) attempts at adaption to new values; and

(3) resistance to new values.

Difficulties will occur if new value systems are introduced too rapidly. Some adolescents and young adults in our current society, having anticipated a plateau where they could rest and digest their projected new value systems, are unable to cope when these values rapidly become passe. They react with marked anxiety, frustration and even depression. In most instances the depression is hidden from their peers.

Problems could also occur if the new values are undesirable in themselves. We must frequently be reminded that just because values are new, does not necessarily mean that they are good. Throughout the ages, attempts at adaptation to adverse values have been associated with considerable conflict.

An individual who tends to resist harmonious adjustment to new, socially accepted values (whether or not these are intrinsically desirable) will be placed under considerable stress. This type of person will be considered a maverick or misfit and, in an increasingly group-oriented society, will very likely be looked upon with derision and may be rejected physically and/or emotionally by the group.

(c) Limitation of Space

Overcrowding will cause many problems. There will be a conflict between individualistic desires for privacy and the positive

benefits that will be associated with group security. This relative lack of privacy and an oversatiation of human contacts are likely to prove stressful to many people.

What we now consider to be overcrowding may not be viewed as such in another generation.

Greater population density will limit everyone's style of life toward the beginning of the next century. Most individuals will find their mobility significantly limited. This in itself will be extremely frustrating and stressful to many.

The search for companionship has been a major quest in all cultures. The question arises as to whether a super-saturated environment will facilitate or inhibit the formation of personal relationships. It may well be that the need for individual friendships will be far less evident than it has been.

(d) Limitation of Choice

Currently, in the United States, people have cultural "overchoice" - choice for choice's sake. The advertising industry has made overchoice a positive value. Indeed, it has become a national obsession. This current unlimited choice is now expected as a right and not a privilege. Crowding will limit the number of choices available to an individual in the future. If the opportunity for choice is restricted too severely, the **desire** to choose will become the **need** to choose.

When there is an insufficient opportunity for choice, for example, a lack of upward social mobility, psychosocial frustrations occur. This may account, to some degree, for the frustrations experienced by many Danes and Swedes and, in some instances, contributes to the currently high suicide rates in these countries.

In every society there must be an optimum number of available choices. And what may be optimum in one society may be excessive or insufficient in another. The relative limitation of living space will undoubtedly dictate a trend toward miniaturization of possessions and, beyond that, a limitation of the number of material possessions.

It is very likely that "excessive" individualism, expressed on an interpersonal basis, will be seen as an illness in a crowded, group-oriented society of the future. This will result in calls for active psychosocial treatment in an attempt to make such persons

conform. If it goes beyond certain limits, it is conceivable that individualistic behaviour may be considered a criminal act.

It is likely that the greatest threat to the individual, therefore, will be separation from the group, whether this occurs accidentally or as a punitive measure. People who are raised to consider the group as their main security, on the other hand, could be so threatened by forced separation from the group as to experience severe psychological stress. Separation phobias will become very common.

(e) Information Overload

Another source of future health problems could be information overload. Today, in many ways, one has to know what **not** to read as much as what one should read. Knowledgeable computer specialists are fond of quoting "garbage in, garbage out"! The same danger exists in the various sciences and even among the lay public in terms of the indiscriminate flood of publications. This flood is likely to increase at a rapid rate, literally inundating the public.

(f) Mass Media

Another stressful situation is likely to occur as a result of continued pressures by the mass media. Throughout the ages, we have been concerned lest some media mogul might sway, mold, or control the minds of the total population. Modern communications technology has already afforded the radio and television industries the power to inadvertently or deliberately modify or control the thought patterns of tens of millions of Americans by conditioning the news audiences through the mechanism of the repetition of the same or similar news programs.

The methods by which information is circulated is likely to have an important effect on the mental and emotional processes of individuals during the transition to post-industrialism during the beginning of the next century. Our current techniques are antiquated and dangerous. A new concept of education is required to prepare journalists and editorial writers for their current and future obligations. To be optimally effective, they must be aware of the changing patterns of our society.

(g) The Threatened Family

Problems are likely to occur for a period of time caused by the depreciation of the family as the prime unit of our society. It is not clear whether nurseries and other communal "parents" will be effective in establishing meaningful ego capacities in children and adolescents. Some pediatricians claim that disastrous results may occur if a child's natural parents are replaced by group surrogates.

On the other hand, in a crowded group-oriented society, it is theoretically possible that a child raised in terms of our current concepts would be ill-prepared for a more subordinate role in a group-oriented society. Once again, it is likely that the most severe problems will occur during the transition period of the next generation.

(h) Male-Female Relations

During the next few decades, a change in the relative status of men and women will be a prominent source of stress. In urban industrial areas, as previously noted, we are living in a matriarchy.

As women attain equality in the marketplace and as it becomes the exception rather than the rule for women to remain at home, they too will be dominated by the large organizations in which they will work. They, too, will become "we" oriented and a greater similarity between the sexes will evolve.

Should the images of men and women overlap to an increasing degree, there may be progessive confusion among children in role identification. Eventually, children are likely to identify with the group more than with either parent or the family. During the transition period, however, there may be severe hiatuses in which gender and other role identifications may be most difficult.

Anticipated Symptoms and Syndromes

A number of health trends can be anticipated. Schizophrenic syndromes and certain types of depressive disorders that have hereditary propensities will continue to be common. Hypochondria and psychosomatic problems are most common in individuals who employ obsessive-compulsive defense mechanisms to compensate for increased anxiety. Obsessive-compulsive personality patterns appear to go hand in hand with the present encyclo-

paedic method of learning. I believe that hypochondria, phobic defense and psychosomatic disorders will remain very prominent during the coming generation and probably during the early part of the twenty-first century.

As the twenty-first century evolves, I anticipate that the new post-industrial society will also spawn entirely new types of psychogenic defects. The symbiotic relationship between man and automated and cybernated systems is likely to be one of the prime forces behind this eventuality. In addition, difficulties in adjusting to a leisure-dominated society are also likely to produce qualitatively different psychologic symptoms and syndromes.

What To Do?

Several preparatory steps could dilute or avoid some of these anticipated future stresses:

1. Human functioning must be viewed in terms of the interrelationships between living, mental and social forces.
2. It must be appreciated that socio-economic, socio-political and technological forces have a crucial influence upon psychological health.
3. The mental stresses caused by progressively increasing rates of change could be significantly diluted, if planning was primarily normative rather than exponential in nature.
4. An educational system should be developed:
   (a) To train humanistically-oriented programmers in an awareness of the interactions between the individual, society and technology.
   (b) To train individuals to work symbiotically with automated and computerized systems.
5. Individuals should be educated to prepare themselves to live with pride and pleasure in an increasingly leisure-oriented society in which fewer hours will be necessary to guarantee economic security.

Conclusion

If men and women manage the transitional period from an industrial to a post-industrial society with balanced wisdom, then a new

golden era could be upon us. Should we become the slaves rather than humanistically oriented masters of our future, then we run the risk of creating a technological dark age with all of its implied stressful consequences. I believe the choice to avoid future stress is within our grasp.

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Part II

Transformation to a New World Order

Chapter 5

The Great Transition

By Herman Kahn

Two centuries ago, human beings were comparatively few, poor, and at the mercy of the forces of nature; about two centuries hence, barring some overwhelming combination of bad luck and bad management (an essential caveat), people will be numerous, rich, and in control of the forces of nature.

We call this possibility The Great Transition. It involves, *inter alia*, moving most of the world's people, in about four centuries, from:

- — few to many
- — poor to rich
- — primitive to technological
- — rural to urban (and, later on, to suburban and eventually to much rural living with urban amenities)
- — many separate civilizations to a global civilization, but one containing many cultures
- — largely sacred or religious cultures to largely secular cultures (but this may change — at least to a degree)

— mostly illiterate to mostly literate
— chiefs and kings to decision-makers and administrators
— parochialism to global consciousness
— sticks and stones to nuclear and other advanced weapons
— earth-confined to interplanetary.

Since the future is always unknown, the Great Transition is certainly not inevitable. Our point is merely that such a course of events is possible and plausible, and at the moment we judge it to be more likely than any alternative scenario we have seen. In short, we believe that mankind now stands near the mid-point of a Great Transition toward a better future.

Declining Rate of Population Growth

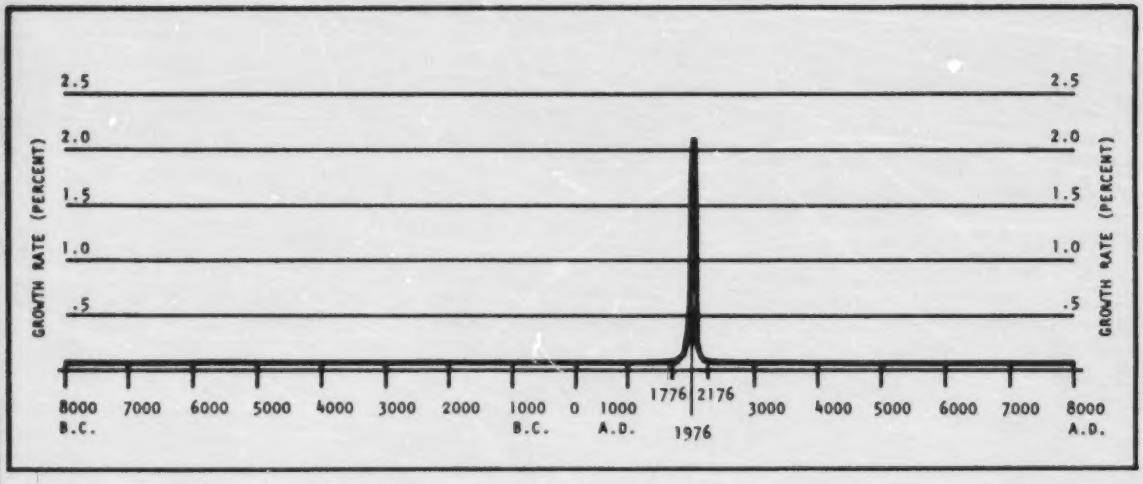
The vision of the future exemplified by the Great Transition is much more plausible and persuasive than that associated with exponential growth and collapse as epitomized in **Limits to Growth**. For example, it is now agreed among most demographers that the rate of world population growth reached a peak in the 1960s at about 2.1 percent, and has since been declining rapidly. The rate is now about 1.5 percent. This pattern of world population growth is depicted over a 16,000 year time frame in the accompanying chart.

This curve of the rate of world population growth is indeed dramatic — a single sharp "spike" in an otherwise relatively stable flat period. This "spike" is estimated to be quite narrow, about 100 years at the 1 percent mark, and illustrates better than anything else the unique and special importance of the Great Transition period. We can clearly and legitimately refer to the concept of "before spike" and "after spike" phases in man's history.

The curve's shape implies that the extraordinarily sustained high rates which characterize the Great Transition are probably unique; we never saw them before and may well never see them again.

The main point, however, is that many crucial growth processes are responsive to social — as distinct from physical — limits. In other words, natural forces tend toward a stable equilib-

Population Growth Rate in Long-Term Historical Perspective



SOURCE. Adapted from Ronald Freeman and Bernard Berelson, "The Human Population," *Scientific American*, September 1974, pp. 36-37.

rium over the long run, and not the sort of collapse which is conjured up by the theory of exponential growth.

This theory foresaw a long term upward trend in the price of almost all resources. But as a matter of actual fact, the theory does not seem to hold water; the prices of resources do *not* increase in the way predicted, at least as far as long term trends are concerned. Further, it now seems likely, contrary to what most doomsdayers are suggesting, that these anti-exponential trends will continue, in part because technology is spreading around the world, and in part because new technologies facilitate the more efficient employment of old resources, and provide uses for new ones.

We cannot at the moment identify *any* commodity, including energy, which we think will be higher in price over the long run, though we do not expect the very low energy prices which existed during the middle decades of the twentieth century ever to recur. This is not to say that there will be no long term increases in the prices of some commodities, only that we cannot now identify these commodities, and believe that there may well not be many of them, if any.

Industrialization and Progress

The ideology of the Industrial Revolution was, more than anything else, an ideology of progress. This ideology held that both individual and societal well-being would increase, at least in material terms, with each succeeding generation, that the grandchildren of those currently alive would lead significantly better lives as a result of the hard work and sacrifice of their forebears.

Western society has been driven for two hundred years by this ideology, which became a self-fulfilling prophecy. For the first time in man's history, the two hundred years since the Industrial Revolution began have seen the attainment of what can be termed the "progress trinity":

(1) sustained economic growth
(2) sustained technological innovation; and
(3) sustained increases in affluence for almost all members of society.

The growth of capitalism and industrialization has created an ever-expanding economic pie. As a result, although distribu-

tion is unequal, almost all members of society are able to enjoy larger slices of that pie without necessarily decreasing the shares of others. This concept of an ever-expanding economic pie became an unconscious assumption for most of Western society.

The Post-Industrial Future

Under the rubric of the "revolution of rising expectations", nations of the Third World have sought and encouraged economic growth as a means of ensuring a better future for their people and achieving a more prominent role in world affairs. The success of such nations as South Korea, Taiwan, Hong Kong, and Singapore, and, to a lesser extent, Mexico, Brazil, Argentina, Spain, Greece, and many others, has established the economic vitality and potential of less developed nations.

The end result of the Great Transition, after the world's people have become affluent and no longer need to sustain high levels of economic growth, will be, practically by definition, a post-industrial society. As the strictly economic tasks of furnishing the material and commercial needs and mechanical services of society require fewer and fewer people, the majority of mankind will turn to pursuits which are valued mainly for their own sake. Thus, post-industrial society seems likely to be characterized by what we call **quarternary** activities — most of them high level or honorific service occupations. If an industrialized country can produce enough surplus product to make the harsh conditions of pre-industrial life a thing of the past, then by implication a successful post-industrial society should continue this trend.

Such a world should be able to solve problems of absolute poverty in a way which is not possible today, and should deal with problems of relative poverty, wealth, power, and status as well as, or better than, they are today — or they may no longer be considered problems.

Shift from "Work" to Leisure: A Matter of Critical Timing

Post-industrial society should be thought of largely as a reward for high performance industrialization. As the general level of affluence and technological capability permit a society to satisfy its basic priorities more easily, people can move on to "higher" and hopefully "better" priorities, still within a given system of values.

Eventually, people might become so accustomed to the new level of affluence and technology that their attitudes and conduct would change, and an altogether new set of values would become the norm. Thus, many people might come to think of a new, higher level of artistic, aesthetic, and leisure activity as a matter of right.

If they did so too early and too intensely, however, they might direct too many resources to those activities and not enough to more mundane, but nevertheless more essential ones. At any level of income and technology, post-industrial societies seem likely to give more support of cultural and artistic activities than would industrial societies. But despite eventual changes in values and the activities being pursued, any society must have some concern for survival and security. Thus, even a fully post-industrial society will retain some elements of the traditional system of production and some defensive capabilities.

Much of this transition to post-industrial society will occur through the operation of declining marginal utility. As the wealth of an affluent nation increases, the marginal utility of each extra increment of wealth will eventually diminish. Like an individual who must choose between extra work or extra leisure, a nation's attitude toward work and leisure will change over time.

It is important, however, that the prospect of a post-industrial society not be confused with its arrival. Once an industrial society reaches maturity, certain tendencies begin to operate which either push it too quickly toward a seemingly post-industrial status or erroneously suggest that this status has already been achieved.

An emerging post-industrial society faces a choice: it can decide either to make a "premature post-industrial society" even more premature, or, alternatively, to slow the pace at which post-industrial policies are adopted, seeking instead to become more fully industrialized in order to become more fully post-industrial over a longer period. Such deferred gratification may be essential to a successful transition.

The Problems of Super-Industrialism

In general, then, we expect the next era to be one of increased affluence, increased leisure, nearly ubiquitous mechanized serv-

ices, and high technology — a computerized world. This is not to suggest that mankind will be free of problems. On the contrary, developed societies seem likely to become especially problem-prone in the near future. As the world passes through the mid-point of the Great Transition during the second half of the 20th century, growth rates reach the highest tempo in history, and start to decline. Under these circumstances, turmoil and confusion seem natural.

Post-industrial society will also be super-industrial. The term "super-industrial" refers mainly to the high rate of innovation in a modern economy and to the degree to which projects are frequently undertaken on such a large scale that various unintended side effects — externalities, as economists call them — are sometimes of greater consequence than the intended effects. For example, before the year 2000, huge 1 million pound airplanes and 1 million ton tankers may be produced; bigger projects, of course, can produce bigger side effects.

Many of the specific dangers and other disutilities of superindustrialization are difficult to anticipate today. However, superindustrial growth could conceivably bring with it such problems as:

— an ecological catastrophe from large scale interference with the biosphere;
— a medical calamity from thousands of new chemicals coming onto the market each year, whose long term effects are poorly understood, if at all;
— worldwide epidemics or "pandemics", owing to increased travel;
— the large scale appearance of drug-resistant pests and viruses due to an excessive use of drugs and antibiotics;
— the danger of an Armageddon, as an increasing number of smaller countries come to possess nuclear, thermo-nuclear, or biological weapons.

Indeed, there is no way that a super-industrial economy can emerge without endangering the environment and the general quality of life to some degree. Various examples from the recent past illustrate this point: defective bolts in DC-10 aircraft, the

Three Mile Island nuclear meltdown, oil blowouts that pollute parts of the sea and beaches, PCB in the food chain, and the fall of the Skylab space station. In the distant future, the ozone layer could be depleted; a new ice age could be caused by an excessive burning of fossil fuels; and lakes and streams could become toxically acidic as a result of insufficient control of pollutants. Problems of this kind will probably intensify as the super-industrial era becomes more widespread in the next decade or two. Thus, as industrialization spreads to more and more countries, and the world economy as a whole becomes superindustrial, a "problem-prone, super-industrial world economy" will very probably emerge, in which the externalities tend to be new, unclear, and difficult to control.

Technological Saviour

However, new technologies can solve problems as well as cause them. Indeed, technology in itself is usually neither intrinsically beneficial nor harmful, though some are more prone to be one or the other — and sometimes both. While we believe that most new technologies are more likely to be beneficial than harmful, some could get out of control — at least for a while — and probably will. The key to whether any particular technology will benefit rather than harm society often lies less in its intrinsic value or even in how it is used than in the value system and criteria which dominate its design and implementation. (See also Chapter 11.)

When and if these external effects can be satisfactorily understood and controlled (or at least alleviated), this super-industrial economy should become largely "problem-controlled" rather than "problem-prone". This could occur quite rapidly if individuals, groups, and societies as a whole seek to deal with the difficulties through innovation and design (rather than by simply banning problems early) and devise solutions before they get out of control — or pass points of no return. As more and more problems are encountered — and dealt with more or less successfully — the chances of entering the problem-controlled era will mount. We expect this to occur early in the next century.

New Super-Powers

Violence, and the threat of violence, may turn out to be the most crucial of all the problems which the world must solve if the Great Transition is to proceed satisfactorily towards its ultimate goals. Oddly enough, the prospects for a relatively peaceful international system after the year 2000 are not altogether unpromising, even in the absence of formal comprehensive arms agreements. Thus, the U.S.-Soviet bi-polarity which has dominated world politics in the 1945-1980 period is gradually being transformed into multipolarity.

By the end of the century — or soon afterward — the concept of superpowers may be so eroded that the term will be abandoned, and the concept of powers of various degrees and sorts revived. By that time, the gap between a large power and a great power will probably be much narrower than the gap which now separates each of the two superpowers from the other great powers. By 2000, there are likely to be five or six potential great powers. All of them will be very advanced technologically and economically, with gross national products (GNPs) of about one trillion dollars or more in 1980 dollars. By the early 21st century, the international system might include three very big powers (U.S., U.S.S.R., and China), and two somewhat lesser great powers (Japan and France and Germany, or a Franco-German alliance).

In such a five power world, one power usually wants to act somewhat like a swing vote, shifting its weight to move the power balance toward the weaker or more aggressive group, thus deterring the stronger group from exploiting any temporary military superiority. Even two strong powers would be unlikely to work together reliably enough to be able to dominate the other three. Since the greatest threat comes from each other, they would tend to compete for the support of the other three. As a result, the two strongest powers are pushed toward exemplary behaviour. Furthermore, any intense conflicts between any two of the five powers would be disadvantageous to both, since the other three could only benefit if such confrontations (particularly nuclear) weakened the first two.

Although the process of reaching a five or six power world

might prove tumultuous and dangerous, the final outcome could well be more stable than the current international system, though it could still be uncomfortably dangerous. In general, such a world might resemble the relatively peaceful and stable concert of powers which characterized 19th century Europe.

Third World Ambition and Positivism

At the same time, however, the economic gap between the rich nations and the poor nations of the present era is a major source of guilt feelings among elites in the affluent countries and, hence, a problem of post-industrialism. Much of this concern is misplaced in that the gap as such is much less important than whether poor nations and poor people are becoming better off. There can be no doubt that this has occurred during the past thirty years, and there is very little doubt that this process will continue. Nevertheless, the gap separating the richest and poorest nations will probably widen for a good long time, and then gradually diminish.

In reality, this gap helps to spur economic growth in the developing world. This process operates in many ways. Among them are tourism, migrant labor, investment by multinational companies, the transfer of new technologies from developed countries, and the growth of demand for the products of Third World countries (the most spectacular example is the enrichment of the oil producing countries and the secondary enrichment of the Third World by the purchases of the rich oil-producing countries and the recycling of petro-dollars). In any case, by the time the Great Transition is completed in the 22nd century, the gap should have been greatly decreased, and people and countries everywhere should have incomes which are much more equal than is the case today.

It should be obvious that halting economic growth (even if only in the rich countries) would do the *most* harm to the poor nations of the world — and to poor people who live in more affluent nations! It is certainly easier to distribute shares of a growing pie than one that is fixed or shrinking. For this reason, opposition to growth has little appeal in nations like China, India, Indonesia, and Egypt — nor is it espoused by the Soviet Union

and her allies. Poor nations and ambitious nations want more, and want it badly. Their morale is good in the sense that they know what they want, feel few qualms about working to get it, and expect their efforts to pay off before very long.

Western Malaise and Negativism

However, there has been a stunning change in the attitude of much of Western society toward economic progress, and the future it can create. The rapidity and intensity of this change have come as a shock.

With astonishing ease, an ideology which denigrates the traditional notion of progress has become entrenched in much of Western society. This outlook has gained a particularly strong hold on the upper middle class elites from which many of our leaders and decisionmakers are drawn. It has also permeated Western educational systems, especially in the United States. American children are routinely taught that current business and government activities waste scarce resources, pollute and damage the environment, increase the gap between rich and poor, cause cancer, and endanger the prospects of all future generations. The usual explanation for all this havoc is a more or less unprincipled, if not vicious, pursuit of huge profits. Limits-to-growth advocates argue that the only hope for human survival is to adopt a "small-is-beautiful", conservationist view of the world; they believe that Western society — indeed, mankind in general — must learn to live with less and with great restraint if there is to be any real prospect of a better future.

In response to the growing industrialization of the advanced capitalist nations, elite groups in the United States and other affluent nations have developed a new set of social and cultural values. We are not opposed in principle to changes in society's priorities. However, we *are* concerned about what is happening to some of the most deeply held assumptions of Western culture.

At the moment, Western culture is in the grip of a pervasive malaise. To move ahead vigorously in the Great Transition, the developed world badly needs a shot in the arm, a boost in morale. Action presupposes motivation and belief. People who believe that a better future is possible are much more likely to bring it

about than people who are convinced that doom lies ahead, that failure is certain.

Consensus, if not unanimity, can be a strong force for progress. Modernization will proceed with much greater facility and success if there is a widely shared commitment to economic growth. The idea that a Great Transition is under way can help to build such a consensus. This image of the future is justifiably positive on purely objective grounds. While it is not instrumental in the sense of being devised to improve morale or promote growth, the Great Transition can be used instrumentally. People who believe in the future should be willing to commit themselves to our present socio-economic-political system, rather than reviling it as a source of corruption and potential disaster. The basic morale of a society can be crucial in promoting progress. Belief, however, depends upon knowledge. The Great Transition can be influential only if it is disseminated, taught, understood, and believed.

Nevertheless, the basic anti-growth syndrome is still very much alive and well and living among non-expert elites (for example, faculties of arts and humanities) and the broad public. Indeed, the deep pessimism and alarmism of the **Limits to Growth** scenario was rejuvenated by the highly publicized study released by the U.S. government in the summer of 1980, **The Global 2000 Report to the President**. Compiled by the State Department and the Council on Environmental Equality with the aid of many other official agencies, the Report reaches the following conclusion:

> "If present trends continue, the world in 2000 will be more crowded, more polluted, less stable ecologically, and more vulnerable to disruption than the world we know today. . . . Despite greater material output, the world's people will be poorer in many ways than they are today."

As we pointed out in the Spring 1981 issue of **Policy Review**, these conclusions by and large are without foundation. While the trend during the early years of the last decade in the developed countries seemed to be running heavily against the proponents of growth, there are some grounds to believe that the tide has turned or will soon turn in the other direction. For one thing, the

Limits to Growth itself provoked rebuttals and outright advocacy of growth from many quarters. Indeed, the book has been largely discredited among highly-qualified audiences (i.e., economists, engineers, energy experts), and even by its original sponsors, the Club of Rome itself.

The Need for Positivism

In what ways then, would an image of the future based upon the Great Transition be beneficial?

Its main value is largely intrinsic, in the sense that realism and accuracy almost always pay off. Indeed, they can be crucial for the planning and policymaking process, especially during an era when change is occurring at an unprecedented tempo. Thinking about current issues can only be improved by the positive attitudes which the Great Transition implies. For example, if one believes that energy supplies are essentially unlimited over the long run, this should be taken into consideration in devising an energy policy for the next five or ten years. By the same token, prophecies of doom can tend to be self-fulfilling.

An image of the future based on the Great Transition cannot be counterproductive in this sense — nor be oriented toward the values and biases of a single privileged class. This is perhaps the greatest drawback of the negative outlook which the halting of growth implies.

With some notable exceptions, the general tide of events, attitudes, and politics seems clearly to be moving, for the moment at least, in the direction exemplified by the Great Transition. Thus, a conservative "renaissance" has been under way in many developed countries since roughly the mid-1970s (in the U.S. since the late 1960s). This resurgence of traditional values tends *inter alia* to promote more positive attitudes toward growth. For example, all three 1980 U.S. presidential candidates (particularly Ronald Reagan, the winner) stood for essentially traditional values, as did Carter and Ford in 1976. Margaret Thatcher of Britain, and even Helmut Schmidt (Germany) are also part of the counter-reformation which has occurred in reaction to the excesses of the 1960s. The resurgence of the Liberal Democratic Party in Japan after the death of Prime Minister Ohira fits into the same pattern. It can be argued that Deng in

China and even Khomeini in Iran are further manifestations of a basic conservative impulse.

While the temper of the times may now be promoting a more positive image of the future precisely when such a vision is needed, the anti-growth movement remains disturbingly vigorous and even virulent. Thus, while the progress of mankind toward a post-industrial society is being facilitated by profound economic and social forces, the present and immediate future are imperiled by a pervasive malaise which is itself promoted by class biases within the developed world.

It must be clearly understood that our *best* chance for progress lies not only in the Great Transition itself, but also in the hope which it holds for all mankind. Better morale will mean a better world for all of us.

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Chapter 6

Transforming the Lifestyle of Industrial Society

by Willis W. Harman

There is an impressive amount of evidence that, **without a major transformation in the total lifestyle of industrialized society,** the human race is in for increasingly serious trouble. No matter whether you look to the increasingly serious problems of resource depletion and environmental degradation, or current threats to plant and animal species and to the planet's life-support systems, or to the hazards of health associated with urban living and the industrial use of dangerous chemicals, or the social consequences of unemployment and underemployment, or the threat from superpowers poised to hurl nuclear weapons at each other, or the deleterious impacts of industrialization in some of the developing countries, the industrial way of life can clearly be hazardous to your health — in the broadest possible sense.

Many people still insist, of course, that the benefits from the industrial way of life continue to outweigh the costs. They claim that there are no really serious problems that a few wise decisions and a little technology couldn't fix up. Yet more and more we frequently hear that Western civilization is at some sort of water-

shed point, that the system is exhibiting serious malfunctioning and signs of breakdown, that the 1980s are "a decade of transition" at best, or of progressive decline at worst.

With all this uncertainty, is there a case for optimism? Can we know enough to manage the near-overwhelming problems and bewildering complexity of modern society? Even if there are solutions to the problems can we assemble the political will to act on them? If major changes in the lifestyle of industrial society are required, will people be sufficiently willing to make those changes? Are there grounds for hope, for splendid possibility?

I believe the answer to all these questions is a resounding "Yes!"

Changing Lifestyle of Industrial Society

To examine the case for optimism we need to think in terms of a somewhat broader than usual definition of "the total lifestyle of industrialized society". This broader definition includes:

- Individual behaviour patterns, consumption habits, and appetites;
- Prevailing cultural values and attitudes which influence individual decisions about how to live and what to consume;
- Societal patterns of family life, living arrangements, employment, population distribution;
- Institutionalized patterns of production and distribution of goods and services, advertising and marketing, provision for social welfare, national defense and public works, planning and managing; and
- The underlying belief system which is generating and/or reinforcing all of the above.

For example, the 1950-1970 lifestyle of North America was characterized by attitudes of affluence, emphasis on increasing consumption (and the use of advertising to promote consumption), increasing use of "throwaway" products and packaging, suburban development, increasing dependence on private automobiles, increasing use and diversity of synthetic food substances and chemicals, increasing faith in centralized governmental solutions to social ills, increasing faith in technological solutions to

social problems. All of these characteristics of the "total lifestyle" have come in for serious questioning in recent years.

Societal lifestyles **do** change of course — they change all the time. Advancing technology has been a profound force for change in our lifetimes and our grandparents' lifetimes. Particularly in such a relatively short term (historically speaking) technological change tends to react on values and beliefs. In the longer term, there is a **reverse** effect — cultural change tends to affect what technologies are developed and applied and what technological opportunities are unexploited. (The ancient Greeks, for example, had many available technologies which they did not exploit, and the technologies of Rome fell into disuse during its decline.) After all, it was a social choice that resulted in our development and application of nuclear technology and genetic engineering. Social choice also resulted in our **not** developing and applying the sorts of knowledge sought by the great seers from Lao-Tsu to Sri Aurobindo.

What is of particular interest here is whether the lifestyle of industrial society can or is likely to change in such a way as to alleviate the present problems. To that question I would like to make two responses, one historical and the other by analogy:

(1) A major cultural and social change was responsible for bringing western civilization to its *present* state; another major change in the future would thus not be unprecedented.

(2) Contemporary forces of change may be likened to the creative response of an organism to fend off a threatening condition; thus these current unsettling factors are sound grounds for hope for the future.

Let us explore these two points in detail.

Characteristics Inherent in the Long-Term Modernization Trend

To understand the characteristics of modern industrial society we need to look back some eight to ten centuries, to the latter part of the Middle Ages. At that time there began, first in Western

Europe and eventually in practically all of the world, the journey on the path economist Robert Heilbroner termed "The Great Ascent" — the path which led to industrialization, modernization and economic development. Sociologists have used the term "secularization" to describe the predominant characteristic of this path, nan.ely the shift of society's guiding values from the traditional religious base to impersonal, utilitarian values. The values that shaped social choices were increasingly influenced by materialistic and economic factors. Transcendent spiritual values and goals became steadily less influential.

By the end of the 16th century, this breaking out of the traditional mold had led to the beginnings of both capitalism and modern science. The new emphasis on practical values generated effective and efficient new methods of production which brought the beginning of the Industrial Revolution two centuries later. Within another century the ethic of "controlling nature" through combining science with technology was firmly established. Knowledge that would generate new manipulative technologies was increasingly favored and supported over other kinds of knowledge (which were left to the humanities and religions with the tacit understanding that if science didn't deal with them they couldn't really be very important).

Knowledge about wholesome human values, ethics and behaviour became neglected. Indeed, some of our eminent scientists assured us that freedom, dignity, love, integrity, creativity, and spirituality were "unscientific" concepts and it would be fruitless to seek fundamental knowledge of them. Economic rationality has come to substitute as a pseudo-ethic because we have become exceptionally confused about the eternal value issues. Thus profit passes as an adequate goal for the corporation, and GNP likewise for the nation.

Goods and services are increasingly produced by industrialized processes and offered and purchased in the mainstream economy. They are shaped more and more by the criteria of the economy. Our bodies are serviced by the "health care industry". We who are coming toward the end of our years will be taken care of by the "nursing homes industry". When our bodies are no longer serviceable they will be disposed of by the "funeral homes industry". Our education, travel, leisure, food preparation and

social life, all tend to become "markets" to be satisfied with "products".

In the process, the per capita demands on physical resources (particularly energy) and the impact on the environment have steadily increased, both because of rising spending levels and because of changes in the kinds of products bought (for example, moving from re-usable wooden boxes to aluminum and plastic containers; from natural fibers to synthetics).

Along with the impressive accomplishments in public health have come new threats to health itself — noxious and hazardous chemicals; artificial foods and unwholesome dietary characteristics; psychological stress from crowding, noise, and isolation from the natural environment; proliferation of nuclear weapons of mass destruction.

Contradictions of Industrial Society

Contemporary social movements are to some extent at least in the nature of a response to the contradictions of industrial society. Those contradictions include the following:

- The assumption is woven through the structure of materialistic modern society, that fulfillment comes from the consumption of scarce resources. This assumption permeates advertising; it underlies the standard economic indicators, the concept of economic growth, the desirability of obsolescence through "progress". The dominant institution in modern society is the economy, and the goals of the economy tend to be the goals of society. The economy is judged on the consumption of goods and services all of which use up scarce resources and exude polluting waste. Hedonistic consumption, once a vice, is now promoted; frugality, until recently a virtue, is now bad for the economy. Eventually, however, the consumption ethic leads unwaveringly to increasingly global competition and conflict. In the end, we must become frugal if we are to survive on a finite planet, "spaceship earth".
- We are taught to think of employment as a bypro-

duct of economic production — keep the production rising and people will have jobs. However, modern societies face limits to production; meanwhile pressures continue to increase labor productivity so the same production in fact, yields fewer jobs. Thus meaningful work becomes a scarce commodity. But in modern society "a job" is the individual's primary way of relating to society, of making a personal contribution and receiving affirmation in return. Such satisfying social roles are essential to the well-being of everyone. What is the future of a society in which fulfilling roles are so defined as to be an increasingly scarce commodity?

- Energy is so intimately related to jobs and productivity that no nation dares consider seriously an energy policy which aims at a drastic cutback in energy use. Yet the costs of foreign oil purchases, in economic and security terms, are undermining U.S. strength as a nation; similar problems beset other countries in varying degrees.
- The belief is widespread that technology will solve social problems. Indeed, economic and technological development have brought abundance, solved problems, and liberated humankind in numerous ways. Yet in recent years we have heard technology made the villain, accused of creating environmental and social problems, and even threatening democracy. The very momentum of economic and technological growth leads toward the automatic making of far-reaching decisions (e.g., modern agricultural methods essentially eradicating the family farm; freeway construction determining land use patterns).
- If these contradictions were not enough to bring us to an Orwellian 1984, they are topped by perpetuation of the threat of nuclear holocaust under the mythical name of "national security".

It is important to recognize that these contradictions did not just happen accidentally. They were implicit and latent in the

centuries-long modernization trend; their roots are back in the secularization of values identified earlier. It was in the late 1960s that the aggregate effect of the contradictions became so apparent that it spawned a host of social movements aimed at calling attention to, and doing something about, their most conspicuous manifestations.

Social Movements as Positive Organic Response

Nature is replete with examples of the creative response of organisms to challenge. The human body's immune system referred to earlier provides one such instance. The presence of a foreign substance, such as a virus or cancerous cell, calls forth an attack squad of special cells capable of destroying or walling off the invader. Another instructive example is provided by the mental breakdown. A person's life pattern contains contradictions which cause emotional problems that eventually become overwhelming. Through the breakdown and re-structuring of reality and behaviour the person's life is re-integrated around a more successful lifestyle. Common to all such instances is the apparent unconscious direction of the process. Some part of the mind operates behind the scenes to stage-manage the transformation.

The new social movements that have sprung up since the mid-1960s in all of the highly industrialized countries from Japan to Canada to Western Europe could be thought of as an analogous phenomenon at the level of the social organism. It is as though at some unconscious level the critical nature of the situation is perceived and the appropriate response is made — seemingly spontaneously around the world, with little sign of an overt conspiracy. Just as a painful boil may, in fact, be a constructive response while temporarily perceived as a nuisance, so some of the confrontational tactics of the various social movements have often been seen in a negative light. Overall, however, a strong case can be made for a more positive interpretation of their behavior.

These social movements can conveniently be grouped under four major themes:

- **Ecological outlook** — concern for environmental protection, resource conservation, wilderness pres-

ervation, and fostering wholesome relationships between man (woman) and nature.

- **Appropriate technology** — focusing on the relationships between people and technology, emphasizing use of small, decentralized technology that is under the control of the user; that does not cause undue insult to the environment; that is resource conserving; and that is compatible with a voluntarily simple lifestyle.
- **Person liberation** — emphasizing development of self reliance and self-emancipation from prejudice and stereotypes relating to race and sex; from oppression by "patriarchal" social institutions; from the dehumanizing effects of the giant organizations of industrial society.
- **Spiritual revitalization** — emphasizing the search for guiding meanings and values; renewed attention to the spiritual; release of full human potentiality; seeing health as holistic, involving mind, emotions, body, and spirit in organic unity.

Each of these movements — environmentalist, civil rights, anti-nuclear, feminist, holistic health, "conserver society", "appropriate technology", "human potential", and so on — seems understandable in its own terms. But if, instead of viewing them one at a time, one asks what the overall pattern means then it appears they are aimed at deflecting the various aspects of the long-term modernization trend; aimed at bringing about a "New Age" society that is qualitatively different from the post-World War II "late-industrial" society. A widening group of people are associated with these movements or affected by them. In fact, an alternative image of a future society is emerging — a society characterized by a synthesis of the four thrusts of contemporary social movements outlined above.

Changing Beliefs and the Respiritualization of Society

Implicit in these social movements is a diagnosis of contemporary societal problems. Turning once again to an organic analogy, there are various "levels" at which illness of the human body can be

diagnosed — attention can be focused on the symptoms, or on the disease and its causative agent, or on the failure of the body's immune system to ward off the disease producing agent, or on the psychosomatic stress that underlie the failure of the immune system. Similarly in the case of industrial society, the explanation for current problems can be sought at various levels — the apparent problems, the system malfunctions underlying these, etc. The diagnosis implicit in the various "New Age" movements is that the basic problem is to be found in the total lifestyle of industrial society and in the belief system which underlies that lifestyle. It is such questioning of the most basic tacitly held premises of industrial society which marks this as a period not only of change but of fundamental transformation.

Lewis Mumford, writing in 1956 on **The Transformations of Man**, argued that there have been at most three or four such major transformations in the history of Western civilization, the last two being the end of the Roman Empire and the end of the Middle Ages. We may be, he said, approaching another such great transformation. Every one of these transformations, claims Mumford, "has rested on a new metaphysical and ideological base; or rather, upon deeper stirrings and institutions whose rationalized expression takes the form of a new picture of the cosmos and the nature of man".

Intuitive Knowledge

What are the implications of this "new picture of the cosmos and the nature of man"? One is the challenging of a fundamental premise of industrial society, namely that what is real is what is measurable.

From Galileo on, the conviction has grown that what can be quantified or measured is important; what cannot is either unimportant or doesn't exist. In an industrializing society, knowledge that could be used to predict and control was defined as "scientific"; it became easy to forget there might be any other kind of knowledge. Yet every stable society that ever existed on the globe, ancient or modern, Eastern or Western, derived its basic value commitments from **another** kind of knowledge! That is the **intuitive** knowledge of deep, inner experience from which sprang **all** the religious traditions of the world.

Western scientific-technological zeal tended to downgrade if not debunk this kind of knowledge. The growth of materialistic science eroded the transcendental base of Judeo-Christian values — or, more accurately, of the perennial wisdom of all the world's spiritual traditions. As a result we are left like a ship with ever more powerful engines, but no chart or compass. We have acquired more and more "know how", yet seem to know less and less about what is worth doing.

Both within the scientific community and in the broader culture can be found numerous indications of our becoming aware of this extraordinary and dangerous imbalance. Among the scientists we see new inquiries into unconscious processes, hypnosis, psychosomatic origins of illness, the role of attitudes in healing, biofeedback training, psychic phenomena, "levels" of consciousness. We are learning the extent to which we create or cure our own illnesses, the ways in which our minds are joined other than by ordinary visual or aural communication, the ability of the mind to "image" solutions to complex problems. In the culture at large, the quest for individual spiritual meaning and for caring relationships has replaced both the older dogmatic religion and the nihilism of the mid-twentieth century. The shift in basic premises implied by this "new transcendentalism" is fully as great as the shift from the traditional religious beliefs of the Middle Ages to the materialism of the industrial world.

Toward a Nondisruptive Transition

We are, in fact, on the brink of a major transformation. How wrenching and traumatic is the transition likely to be? What are the odds we won't make it? These questions and their answers have much to do with fear — and faith. If we can only understand the need for basic change and have faith in the process, we will lessen the likelihood of anxiety responses that could increase the trauma. Fear is our main enemy toward a nondisruptive transition.

The implications for individual lifestyles are profound, but not unpleasant. The theme of seeking to consume-and-waste our way to happiness has only become prominent since the end of World War II; prior to that frugality was an unquestioned virtue

and hedonistic consumption was essentially immoral. A more simple lifestyle is completely compatible with a full and rich life.

There is little need to detail here the kinds of individual choices that accompany a voluntarily simple lifestyle. They mainly have to do with reducing one's involvement with and dependence on the mainstream economy — by buying less and making it last longer; buying less resource-extravagant goods and services; living, eating, and dressing simply; shifting to locally grown foodstuffs and renewable energy sources; reducing transportation needs. Many people in North America have made such a change in their lives in the past 15 years, both for the intrinsic rewards it brings and as a witness to their beliefs about what we all must eventually do to some extent. In these cases, the adaptation from affluent to frugal seems to have been relatively painless.

The economic institutions may not be able to adapt so easily. The Great Depression in the U.S. (and to some extent the same could be said of other countries) was never rectified; it was only ameliorated by war spending, the new consume-and-waste ethic (e.g., planned obsolescence), and deficit spending by individuals and governments. The fear of chronic unemployment looms large and inhibits what would otherwise be prudent resource and environmental policy. Closely related is the fear of losing out in the competitive world market by shifting too rapidly to the new direction.

The direction of the transformation of industrial society includes at least the following:

- Gradual redesign of production and distribution systems toward energy-frugal technologies, more durable and reparable goods, less packaging, reduced transportation between origin of goods and final user (hence decentralization of production), lowered resource-intensiveness of materials, goods and services.
- Changed agricultural methods to be less dependent on fossil fuels and fossil-based fertilizers; dispersal of farming to place produce closer to consumers.
- Gradual redesign of communities to be more self-sufficient and more congenial to the natural envi-

ronment and ecosystems, and redesign of work-home relationships to require less transportation.

- Changed incentive structure in the economy to support the above and to ensure equitability of sacrifices and gains.

There is nothing inherently unpleasant about this direction; in fact, in human terms it may be seen to present definite advantages. But the question of getting through the transition period tends to arouse anxiety.

At that point a final biological analogy may be pertinent. That is the process of metamorphosis, by which a caterpillar becomes a butterfly. The metamorphosis of a larva to become an adult insect begins with the degeneration of much of the larval tissue. Simultaneously there is a proliferation of growth around special cells called "imaginal cells". These colonies of new cells, in effect, create parts of the new creature that will eventually emerge from the pupal shell. When they grow large enough, they merge to form the adult insect, and the remainder of the larval tissue in between disintegrates. The process is unconsciously directed. The transformation is profound but the transition is nondisruptive.

Lewis Mumford saw it coming, when he wrote:

> *"We stand on the brink of a new age: the age of an open world and of a self capable of playing its part in that larger sphere. An age of renewal, when work and leisure and learning and love will unite to produce a fresh form for every stage of life, and a higher trajectory for life as a whole. . . . In carrying man's self-transformation to this further stage, world culture may bring about a fresh release of spiritual energy that will unveil new potentialities, no more visible in the human self today than radium was in the physical world a century ago, though always present. . . . For who can set bounds to man's emergence or to his power of surpassing his provisional achievements? So far we have found no limits to the imagination, nor yet to the sources on which it may draw. Every goal man*

reaches provides a new starting point, and the sum of all man's days is just a beginning."

I believe that the metamorphosis of industrial society to some sort of "trans-industrial" society has already begun. Millions of individual lifestyle changes, thousands of "new age" organizations, hundreds of experimental communities and voluntary associations are playing the role of "imaginal cells". They are linked by a vaguely defined image of a harmonious future.

Therein lies our collective optimism and hope for a "trans-industrial" lifestyle within a new picture of the cosmos and our place in it.

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Chapter 7

The Future of Spirituality: Search for Meaning in the Aquarian Age

By Marilyn Ferguson

The spiritual quest begins, for most people, as a search for meaning. At first this may be only a restless desire for something more. The prescient Tocqueville remarked on the coexistence in America of a strong religious spirit and material ambition. But perhaps, he said, this was a precarious balance. "If ever the faculties of the great majority of mankind were exclusively bent upon the pursuit of material objects, it might be anticipated that an amazing reaction would take place in the souls of some. I should be surprised if mysticism did not soon make some advance among a people solely engaged in promoting its own worldly welfare."

Indeed, our vigorous appetite for the material has led us to satiation. Zbigniew Brzezinski spoke of an "increasing yearning for something spiritual" in advanced Western societies where

85

materialism has proven unsatisfying. People are discovering, he said, that five percent per annum more goods is not the definition of happiness.

Traditional religion, he conceded, does not provide a substitute:

> "This is why there is a search for personal religion, for direct connection with the spiritual. . . . Ultimately, every human being, once he reaches the stage of self-consciousness, wants to feel that there is some inner and deeper meaning to his existence than just being and consuming, and once he begins to feel that way, he wants his social organization to correspond to that feeling. . . . This is happening on a world scale."

In a public poll conducted by Yankelovich, Skelly, and White, 80 percent of the respondents expressed a strong interest in "an inner search for meaning". In 1975 the National Opinion Research Corporation reported that more than 40 percent of the adults polled believed they had had a genuine mystical experience. These experiences were characterized by joy, peace, a need to contribute to others, the conviction that love is at the center of everything, emotional intensity, knowledge impossible to articulate, unity with others, and the imminence of a new world.

A Gallup poll released in February 1978 reported that ten million Americans were engaged in some aspect of Eastern religion, nine million in spiritual healing. Those involved in Eastern religions tended to be younger adults, college-educated, living on either of the two coasts, about equally men and women, Catholic and Protestant.

Spiritual experience moved beyond the borders of the establishment so quietly that only the poll takers have measured the change. But the spiritual shift is not readily uncovered by sociological methods. It's an individual phenomenon. For the most part it's the middle class. They are growing spiritually in their daily lives, without putting on far-out clothes and wearing beads around their necks. A person is no longer an oddball because he is known to be on a spiritual quest. He's even envied a little.
Western psychologists like William James, Carl Jung, Abraham Maslow, and Roberto Assagioli focused on trying to understand

transcendent needs and the irrepressible hunger for meaning. Jung compared the spiritual impulse to sexuality in its urgency.

Although there is reason to believe that we all have an innate capacity for mystical experience — direct connection — and although about half the population reports having had at least one spontaneous experience, never before has this capacity been explored by people in great numbers. The grass-roots movement is taking place quietly, manifesting itself in unique ways. Most of its adherents are incognito to those looking for conventional symbols of religiousness.

From Religion to Spirituality

With its periodic Great Awakenings, the United States has always attracted mystics and evangelists. Long before the spiritual revolution we see now, Eastern and Western mystics influenced mainstream American thought.

Needleman said Westerners were moving away from the form and trappings of Judaism and Christianity, "not because they had stopped searching for transcendental answers to the fundamental questions of human life but because that search has now intensified beyond measure". They were looking to Eastern traditions to see what they might offer "our threatened society and our tormented religions".

In 1978, McCall's magazine published a survey of sixty thousand readers showing an overwhelming skepticism about organized religion, even among churchgoers. A poll commissioned by Protestant and Catholic groups revealed what Gallup summarized as "a severe indictment of organized religion". Eighty-six percent of the "unchurched" and 76 percent of the churchgoers agreed that individuals should arrive at their beliefs outside organized religion. About 60 percent of the churchgoers agreed with the statement, "Most churches have lost the real spiritual part of religion."

Formal religion in the West has been shaken to its roots by defections, dissent, rebellions, loss of influence, and diminishing financial support.

The most authoritarian of religious institutions, the Catholic church, has suffered what historian John Tracy Ellis called "a shattering of its fixity", a trauma apparent in the new variety of

doctrine and discipline among American Catholics. "No one group has full authority nor the ability to impose it on other groups," Ellis said. The American church is "shaken and uncertain in an anxious, uncertain time". Lay people are urging reforms, evangelizing and participating in pentecostal and charismatic movements; by 1979 one-half million Catholics were estimated to have become charismatics, speaking in tongues and engaging in healing practices. The number of nuns and priests declined dramatically during the seventies, theologians were dissenting from papal authority, parochial school populations were declining. Similar rebellions have been taking place in nearly every organized religious body in the country.

An increasing number of churches and synagogues have begun to enlarge their context to include support communities for personal growth, holistic health centers, healing services, meditation workshops, consciousness altering through music, even biofeedback training.

Cultural awakenings, as historian William McLoughlin noted, are preceded by a spiritual crisis, a change in the way human beings see themselves in relationship to each other and to the divine. During "great awakenings" there is a shift from a religion mediated by authorities to one of direct spiritual experience. Not unexpectedly, some religious groups see the emergent spiritual tradition as a fearful threat to the Judeo-Christian tradition.

Ironically, every organized religion has been based on the claims of direct experience of one or more persons, whose revelations are then handed down as articles of faith. Those who want direct knowledge, the mystics, have always been treated more or less as heretics, whether they were the medieval mystics within Christianity, the Sufis within the borders of Islam, or the Kabbalists within Judaism.

Now the heretics are gaining ground, doctrine is losing its authority, and "knowing" is superseding belief.

Direct Knowing

"Mystical states," said William James, "seem to those who experience them to be states of knowledge. They are insights into depths of truth unplumbed by the discursive intellect."

The dictionary's first definition of mystical is "direct communion with ultimate reality". The second meaning: "vague or incomprehensible". Here is a central problem: direct communion with ultimate reality is vague and incomprehensible to those who have not experienced it!

The word mystical derives from the Greek mystos, "keeping silence". Mystical experience reveals phenomena that are usually silent and inexplicable. This expanded consciousness, this whole-knowing, transcends our limited powers of description. Sensation, perception, and intuition seem to merge to create something that is none of these.

A Canadian psychologist, Herbert Koplowitz, has called this whole-knowing Unitary Operational Thinking, a stage that is two steps beyond the most advanced level of cognitive development in the theory of Jean Piaget. Piaget's stages — Sensor-Motor, Pre-Operational Thinking, Concrete Operational Thinking, Formal Operational Thinking — span the spectrum of human mental development from the diffuse world of the infant to the symbolic, abstract thought of an intellectually active adult.

Beyond ordinary cognitive thought Koplowitz postulates a fifth stage, Systems Thinking, in which the individual understands that there are often simultaneous causes that cannot be separated. Conventional science assumes that cause and effect can be clearly separated and does not reach the level of Systems Thinking.

In the sixth stage — Unitary Operational Thought — we discover our own conditioning. We understand that the way we perceive the external world is only one of many possible constructs. "Opposites, which had been thought of as separate and distinct, are seen as interdependent. Causality, which had been thought of as linear, is now seen as pervading the universe, connecting all events with each other." There is no dualism, no separation of mind and body, self and others.

Having achieved a cognitive stage that empowers a more coherent understanding, the Unitary Thinker is to a Formal Operational adult as that adult is to a child. "Just as mysticism is not a rejection of science but a transcendence of it," Koplowitz said, "science is not a rejection of mysticism but a precursor of it."

Unitary thought is holistic. Because it goes beyond the

further reaches of our rational tools, it can only be conveyed through paradoxes, meditation, experience.

To experience the domain of Unitary Knowing we must get outside our old, limited way of perceiving. As psychologist Ron Browning put it, "To grasp that which is beyond the system, you need to transcend the system. You have to get out of 'lineness' into 'squareness', out of linearity into planes, then shift or expand into three-dimensional spacetime, then four-dimensional space. . . . Change at this level is a change in the very nature of change."

As a way of looking at consciousness, holographic theory is closer to mystical and Eastern thought than to our ordinary perception. Karl Pribram said: "It will take a while for people to become comfortable with the idea that there is an order of reality other than the world of appearances." But the discoveries of science have begun to make sense of mystical experiences people have been describing for millennia. They suggest that we can tap into that order of reality behind the world of appearances. Perhaps mystics have hit upon a mechanism that gives them entry to the implicate, or enfolded, order: "My best hunch is that access to those other domains is through attention . . . that the brain can somehow abrogate its ordinary constraints and gain access to the implicate order."

Flow and Wholeness

Two key principles seem to emerge in all mystical experience. We might call them "flow" and "wholeness". The ancient Tibetan teacher Tilopa referred to them as "the principle of the nonabiding" and "the principle of nondistinction," and warned against harming them. Our culture has indeed harmed these principles. We try to freeze the nonabiding, we try to imprison that which exists only in movement, freedom, relationship. And we betray wholeness, nondistinction, by breaking apart everything in sight so that we miss the underlying connection of everything in the universe.

In mystical experience there is the sense that "this is the way things are". Not how we wish them to be, not how we analyze them to be, not as we have been taught, but the nature of things — the Way.

Flow and wholeness are seen as true principles, not just in

relation to work, health, or psychological growth but throughout the fabric of life. The developer of a kind of psychological aikido for dealing with conflict remarked on the way the technique of flowing with an opponent causes a gradual change in the practitioner. "It may be subtle at first, but even the most mean-spirited of people begin to relinquish their grasp on their aggression, lose their anger, and reconnect with the living force."

These mystical experiences reflect, more than just the flowing wholeness inherent in living systems (as in the theory of dissipative structures), the flow of our world from another dimension and the tendency of the universe to create ever more complex wholes. On an everyday level this knowledge shifts our time frame from temporal to external; we accept impermanence and cease struggling to keep unchanged everything that must be changed. We experience life's blows and blessings with greater equanimity.

Our futile effort at control impedes the flow we might otherwise have in our lives. Once we get out of our own way, we can become ourselves. Just as we must trust ourselves to the bouyancy of water if we are to swim, we must relax into that flow.

The second principle of wholeness — non-distinction — represents the connectedness, the context, of everything. Just as science demonstrates a web of relationship underlying everything in the universe, a glittering network of events, so the mystical experience of wholeness encompasses all separation. "In free space there is neither right nor left," says a Hasidic master. "All souls are one. Each is a spark from the original soul, and this soul is inherent in all souls." Buddhism maintains that all human beings are Buddhas, but not all have awakened to their true nature. Yoga literally means "union". Full enlightenment is a vow to save "all sentient beings". This wholeness encompasses self, others, ideas.

Love is felt as a dynamic state of consciousness rather than as an emotion. Just as fear is constricted and chaotic, love is wide and coherent — a creative flow, harmony, acceptance of human frailty imbedded in deep self-knowledge. It is defenseless power, communication, vanished boundaries, closure.

This wholeness unites opposites. This Radical Center, this healing of the separation of human beings from each other and from nature is described in all mystical traditions. Nicholas da

Cusa called it the **coincidentia oppositorium**, the union of opposites. In the Hasidic writings it is "the union of qualities, twos which oppose each other like two colors . . . but seen with the true inner eye form one simple unity". In Buddhism it is **madhya**, the transcendent middle way. The Kogi Indians of Colombia speak of the Way of the Souls leading at once upward and downward, the joining of polarities, the black sun.

In these spiritual traditions there is neither good nor evil. There is only light and the absence of light, wholeness and brokenness, flow and struggle.

In this wholeness, oddly enough, virtues we might once have sought in vain through moral concepts now come spontaneously. It is easier to give, to be compassionate.

New God: Beyond the Sunday-School Mentality

In the emergent spiritual tradition, God is not the personage of our Sunday-school mentality. God is experienced as flow, wholeness, the infinite kaleidoscope of life and death, Ultimate Cause, the ground of being, what Alan Watts called "the silence out of which all sound comes". God is the consciousness that manifests as **lila**, the play of the universe. God is the organizing matrix we can experience but not tell, that which enlivens matter.

We need not postulate a purpose for this Ultimate Cause nor wonder who or what caused whatever Big Bang launched the visible universe. There is only the experience. To Kazantzakis, God was the sum total of consciousness in the universe, expanding through human evolution. In the mystical experience there is the felt presence of an all-encompassing love, compassion, power. Individuals revived after clinical death sometimes describe passage down a dark tunnel to an unearthly light that seems to emit love and understanding. It is as if the light itself is a manifestation of universal mind.

The Vision: The Coming of Light

Contemporary mystical experiences from many individuals and many parts of the world have centered in recent years on a collective and intensifying vision, the sense of an impending transition in the human story: an evolution of consciousness as significant as any step in the long chain of our biological evolution.

The consensual vision, whatever its variations, sees this transformation of consciousness as the moment anticipated by older prophecies in all the traditions of direct knowing — the death of one world and the birth of a new, an apocalypse, the "end of days" period in the Kabbalah, the awakening of increasing numbers of human beings to their godlike potential.

Light is the oldest and most pervasive metaphor in spiritual experience. We speak of enlightenment, the city of light, the Light of the World, children of light, the "white-light experience". In **The Reflexive Universe** Arthur Young, inventor of the Bell helicopter, offered in speculative scientific terms an idea as old as myth and Plato: We represent a "fall" into matter from light, and the lightward ascent has begun again.

Lawrence Ferlinghetti wrote a poem about "Olbers' paradox", the observation of a learned astronomer that there were relatively few stars nearby; the farther away he looked, the more there were.

> So that from this we can deduce
> that in the infinite distances
> there **must** be a place
> there must be a place
> where all is light
> and that the light from that high place
> where all is light
> simply hasn't got here yet . . .

The dream of light and liberation is poetically expressed in an apocryphal contemporary **Aquarian Gospel of Jesus the Christ**. For too long, it says, our temples have been the tombs of the hidden time. Our temples, crypts, and caves are dark. We have been unable to see patterns. In light there are no secret things. . . . There is no lonely pilgrim on the way to light. Men only gain the heights by helping others gain the heights. . . .

"We know that the light is coming over the hills. God speed the light."

* * * * * * * *

Marilyn Ferguson** is author of **The Aquarian Conspiracy** and publisher of the **Brain/Mind Bulletin**.* This chapter is an edited version of a chapter in ***The Aquarian Conspirary: Personal and Social Transformation in the 1980's © 1980 by Marilyn Ferguson, published by J.P. Tarcher, Inc. (to order direct from publisher send $15 plus $1.25 p. & h. to 9110 Sunset Blvd., Los Angeles, Calif. 90069). Used by permission.

Chapter 8

Women Achieving Power: Evolution, Synergy, Technology and Supra-Sex

by Barbara Marx Hubbard

It is an extraordinary fact of history that women are achieving power at the dawn of what can be either the Universal Age, or Armageddon. This change in women's role is not only vocational and social. It's a species-wide shift of function at a critical moment in evolution.

From an evolutionary perspective, the past 25,000 years have been the phase in the development of Homo Sapiens in which we populated the Earth. We were given the commandment to "Be fruitful and multiply", which we did, spanning the entire globe with the human race. During that period we developed our cultural capabilities of language, agriculture, art, science, technology and industry.

In general we're seeing the end of that phase of human history and the beginning of the next. The Earth is a finite planet and we cannot continue to produce ad infinitum, using up non-renewable resources. We've come to a definitive, evolutionary change point.

From Pro-Creation . . .

One of the most critical elements in this over-all species-wide change is the role of women. Up until recently women's primary role has been to reproduce the species. Most women had to have six, seven, eight babies in order for a few to live. In some developing countries, this is still true, because — until they have achieved their basic industrial, scientific, and technological capacities — disease and early death are rampant. Children die by the thousands. In order to overcome that brutal reality women had to have maximum numbers of babies, which meant that their energy, not only physical but emotional, was totally absorbed in giving life to the species.

Concurrently, men's energy was bound to the necessity of sustaining life through difficult and exhausting work on the farms and in factories. "By the sweat of our brow" was no metaphor. For most people, most of the time, life has been short, and choiceless. People remained where they were born, limited to a life cycle of eating, sleeping, reproducing and dying.

Today all that has changed in the developed world. Women are having fewer babies — and not only because the species no longer needs more and more children. We now know that it is no longer our "duty" to reproduce continually. Consequently women in the developed countries are living longer lives and having fewer children. Parenthood is a choice not a necessity.

To Co-Creation

Since a rapidly decreasing percentage of a woman's life is invested in pro-creation, what is the rest of that feminine energy for? I believe it is for "co-creation". This is a new term which means the act of consciously participating in the process of evolutionary change. Rather than nurturing babies, the energy of women is now available for nurturing the planet's evolution. As we move from pro-creation to co-creation, the energy that has been absorbed in the miracle of gestation, pregnancy, birth, lactation, and nurture is free for new tasks. But this is not ordinary "professional" energy. It is passionate love, an intuitive givingness of one's whole being for the sake of "the child", the unknown future. It is creativity beyond the work-day requirements of most "jobs".

It is significant that this creative energy is being freed up for new work at the very moment in history when our planet is itself undergoing a fundamental change. In fact, the female half of the species and planet Earth are coming into a new phase of growth together. Women's bodies, which are attuned to the cycles of the Earth, may even be sensitive to the fact that the Earth is shifting from its finite, terrestrial, material-building phase to its immeasurable universal, co-creative phase.

. . . *Of Universal Life*

Our generation has been born during the transition from Earth-only to universal life, literally. Right now we are in a narrow passage, comparable to the birth canal, when we must rapidly co-ordinate our vital life support systems on Earth, distribute goods and services equitably throughout the body politic, and conserve our environment. At the same time we must co-operate with each other and reach beyond ourselves into the universe for new resources, energy, and eventually, perhaps, contact with other life and civilizations within this abundant universe of ours. I believe it is no coincidence that women are being released from the need for maximum reproduction just at the time when the planet itself is being "born" into the universe.

Every major problem we are facing today is in some way a result of this planetary shift. From this perspective, inflation, overpopulation, resource depletion, environmental degradation, etc. are not "mistakes". Until recently, we had no idea we were so affecting the world by our personal efforts to live better. Therefore we should not feel guilty about these problems. They are natural evolutionary drivers that are occurring because we are coming to the end of a specific phase of growth on a finite planet. In the long run, all the trends are upward toward an extended life sp.., extended environment, expanded awareness, increased resources, energy, space and knowledge. We are not only approaching the limits of Earth, we are also on the threshold of the infinite universe.

New Leadership Required

At this critical time, new leadership is urgently needed to begin the evolutionary tasks of restoring this Earth, meeting the needs

of people and developing our new, limitless environment in outer space.

Even now on this planet we have all the resources and technologies needed to overcome hunger, poverty and disease. Why then are we in such danger? Why are people starving, arms escalating and alienation increasing? I believe it is because present leadership, worldwide, is governing us from the perspective of the past not the present. None, as far as I know, is leading on the basis of the reality of our future potentials. They are instead attempting to manage the various inter-related crises on a short term, non-evolutionary basis. Piece-meal solutions abound. Nowhere as yet are there leaders of existing governmental, academic, business, or religious institutions who are pioneering in new long-range goals and wholistic approaches.

Yet everywhere under the surface of large bureaucracies and systems, new approaches are in fact emerging. Innovations, breakthroughs, cooperative enterprises and networks for positive change are emerging like hidden green shoots under the snow in spring.

I believe it is women who have the best opportunity to lead in the creation of these new activities because they are released from the old tasks of maximum reproduction and are not yet pigeon-holed in the out-going system.

Achieving some equality was a vital first step. The next step, however, definitely is not toward gaining more equality (even though that is desirable). The fact is that achieving **power** will not mean excelling at existing jobs, because many of those jobs are not fruitful and will be diminishing in power. It's time to acknowledge that the former traditional professions of lawyer, businessman, doctor, politician, farmer and blue-collar and white-collar worker are changing as the planetary evolution takes place.

In every one of these areas society needs fresh approaches . . . which are in fact emerging through networks of shared intention, such as non-adversary law, cooperative free enterprise, wholistic health, and self-help politics.

Functional Pioneering

Achieving power today means finding those relatively new concepts that are emancipating productivity, creativity and freedom

— in education, business and the growing edge of science — and putting one's energy there. I call it "functional pioneering". This is an important concept because at a time of radical social change, power is not achieved by becoming good at what already looks powerful, but by seeking out new arenas of life-oriented activity. This offers quite a different type of leadership than that of saying, "I want to be the best damn lawyer in Washington." That's not to say there's anything wrong with being a good lawyer. However, when you talk to lawyers, many of them will say, "I'm locked into an adversary system here, and I don't really believe in most of the things I'm doing."

So if a woman is interested in law, I would advise her to learn everything about the existing system and then figure out how to develop more synergistic law suitable for the coming age of interdependence and capacities that include the potential for mutual annihilation. For example, I know lawyers who are training other lawyers in how to resolve conflict without litigation and how to bring people together so they don't have to be adversaries. That's a new kind of law. Also, in the field of business there are new ideas about cooperative free enterprise that focus on an "I win — you win," approach rather than that of "I win — you lose."

We must remember that because we live at a time of historical change, the existing power system looks powerful, but is increasingly disfunctional. It's like the condition of monarchy at the time of King George. If you were a member of the court you would probably take it for granted that power resided in the king. However, underneath the monarchial system were the patriots, looking for a new kind of power based on freedom and self-government. You would have had a choice at that time of joining the existing power structure or working with the pioneers and patriots in France, England and the New World who were in fact seeking a new and better system. Of course, that new system eventually became more powerful than the monarchy, because the nature of power is its ability to emancipate creativity. When a system begins to stifle creativity, its power is draining away. So real power and leadership will be gained by discovering what's growing, what's breaking through, what new things need to be done that we can best do . . . and doing them very well indeed.

Aligning Yourself With Universal Forces

In the deeper sense, real power springs from knowing how creation works and working with it. This kind of power has several elements:

The first is the **awareness that there is a patterning process in the universe**, which you can call God, evolution, the dialectic, or universal intelligence — it does not matter what name we use. The key element to this power is, I believe, the awareness that there is a creative, cosmic force moving toward ever more complex whole systems of greater consciousness, freedom and order.

This awareness empowers you, because you sense that there is a progressive directionality in the nature of reality which is reinforcing your own motivation toward greater freedom, consciousness and order. Rather than sensing yourself as an isolated individual in a materialistic universe sinking into decay, you experience yourself and your world as part of a fifteen-billion-year continuum of the rise of order out of chaos — and you become attracted to the future as an organism that is progressing toward the unknown. You find this unknown future attractive, and are vitalized by it because you sense it will enhance your own awareness and capacity to participate in the co-creation of your own future. In religious terms, you sense your will and the will of God aligning. Finally you begin to see yourself as the product of a creative process whose intention is to enhance your creativity.

So the prime element of power is the perception that there is a pattern in evolution itself which we can discover and align ourselves with, because it's the source, the power that created this universe, and us. In other words, I believe that in the coming age, power will have an evolutionary- spiritual base. It will accrue to those who experience themselves as co-operating freely with the intention of creation. Although both men and women have spiritual natures, there is some indication that women's energy, as it is released from pro creation, is especially sensitive to spiritual attunement and intuitive resonance with natural patterns of evolutionary change. As the pro-creative system turns off, a co-creative system of deep love for the world-as-a-cosmic-child, may be turning on, releasing wellsprings of creativity to complement the masculine genius that built the cathedrals and the rockets to the moon.

A second element of the new power for the future springs from the **understanding of synergy,** which means combined action or co-operation. A synergistic body is different from and greater than the sum of its parts. Science has demonstrated that nature advances through increases in synergy or wholism, as for example, a cell is more synergistic than the molecules which compose it, and a multicellular animal is more synergistic than a single cell.

Today human society is at this phase of synergy, or the mutualization of differences, to form a more complex whole. **Anyone who gains power in the coming period of history will know how to enable separate interests to co-operate in a synergistic or all-win way.** This will be necessary because we are rapidly moving to a time when it will no longer be possible to grow at the expense of another part, since all parts are interdependent. If Part A is growing at the expense of Part B, Part B is going to attack Part A, and both parts will lose. We see an example of non-synergistic behavior in any black-white conflict. If whites attempt to dominate blacks today, blacks are now powerful enough to react and damage the economic system. On the other hand, if the blacks strive for "Black Power" and separation from the whites, they really cannot grow fully as people, because they would be isolating themselves. So both blacks and whites are being forced by the nature of reality (not idealism) to find a higher degree of co-operation in which both groups benefit.

Now just as women may have special giftedness in evolutionary spirituality, so they may also be natural synergists. Margaret Mead once said, "Women are synergistic because you can't have half a baby. You have to have a whole one, or none at all!" Most mothers have learned to care for the whole child and the whole family; it must be programmed in our genes. Therefore, women may be especially capable of achieving synergistic power — power that enables the whole system to flourish through mutual cooperation rather than competitiveness.

A third key element of future power is **evolutionary technology.** Here women are at a decided disadvantage, so far. Evolutionary technologies are those which lead not to incremental change, but to radical newness and the unknown. Such technologies are emerging in the biological revolution, which leads to the

control of life, overcoming aging, and the creation of new life forms; in the astronautic revolution, which leads toward exploration of the universe and building new worlds in space; and in the cybernetic revolution, which points toward "silicon-based life", artificial intelligence and self-replicating machines.

These three capacities **combined** lead to quantum transformation, a step as far above early Homo Sapiens as we once were from pre-humanoids. These tools are technologies of transcendence. They suggest that the human race will be emancipated from the animal-human conditions of planet-boundedness, self-centered consciousness and even physical death. We are giving birth to a universal species. Within twenty years we may see the birth of children in outer space who will have access to the computerized information of the world, and will be able to set forth to build new worlds in space, mine asteroids, send signals to other life and extend their lives for indefinite numbers of years.

If women are to achieve real power in the next twenty years they will have to learn about, and participate in, the appropriate use of the transcendent technologies which can empower the human race itself. I believe that beneath the surface of the ignorance and even aversion which many women feel toward high technology lies a profound capacity to understand it, because it represents life — new life, continuing life, unknown life. Once that idea has been grasped by women, I think they will take hold of evolutionary technologies just as they did of their children's survival needs . . . and require that these miraculous powers be used for the highest good of all. For, needless to say, these same technologies also represent the capacity for the destruction of life on a planetary scale.

Real Power Through Supra-Sexuality

Women desirous of achieving power will seek out the **real** basis of power. This is, alignment with evolutionary patterns of transformation — or God; synergistic organizational capacities; and the development and guidance of evolutionary technologies. The foundations of power in the coming age are evolutionary process, synergy and technology, and women may be the members of the species most able immediately to gain access to them.

But this empowerment cannot be at the expense of, or in competition with, men. To achieve power we must aim at co-creative relationships in which women can lead in the development of a new level of man-woman partnerships.

In the past we united, male and female, for the pro-creation of the species. In the future we will unite not only to have babies but also to do chosen work. This is evident as we are increasingly attracted to each other by shared purpose and common goals.

If women can become whole, uniting the masculine and feminine aspects of their nature, while finding their new vocations in a changing world, they will liberate men to do the same. Men will no longer have to work long hours to support many hungry children. They will be free at last to seek out their own unique creativity — and to balance the feminine and masculine aspects of their nature.

When such couples unite — or when such men and women work together — I believe we will see the greatest emancipation of genius the world has ever seen. The bonds that bound men and women to reproduce the species are dissolving. The new links that connect men and women to create good works for the world are just emerging.

Women achieving power will foster these new linkages of whole men and women creating together through shared intent rather than biological and economic necessity. They will emerge as supra-sexual, as well as sexual, beings leading by attraction toward the co-evolution of an unlimited future for the whole human race.

It is a great age in which to be a woman. It is a great age in which to be alive, man *and* woman! We are the first generation to practice the new art of conscious evolution. There are no schools. We are all teachers and learners. I predict the divisions of the past will fade like the scars of birth as we inherit the fullness of our own capacities to create together.

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Chapter 9

Achieving a New World Order

By Hazel Henderson

There is an inevitable trade-off in evolution between adaptation and adaptability. Past success constrains future success. This is evolution's most interesting and challenging riddle at many biological levels, culminating in that of human societies: growth creates structure, then structure inhibits growth. Nothing fails like success! Anthropologists would state it as the Law of the Retarding Lead: those cultures most successfully adapted to the past and present will be overtaken by those less committed and over-specialized. Religious views would restate the same proposition as simply "The Last Shall Be First". However these concepts are stated, it is clear that a massive evolutionary shift is underway, based on a radically new set of environmental and resource conditions, and that these conditions are driving human societies into domestic transitions and a new configuration of global order.

Keepers of the Old Order

This New World Order is inevitable, even if the keepers of the old order, in their fear of change and the loss of their own power, try

to stem the tides of change by means of desperation in the form of violence or nuclear war.

Today we see the maturing industrial societies of the Northern Hemisphere caught in this oldest evolutionary trap, having developed socio-technical configurations superbly adapted to past conditions of vast, unexploited fossil fuel and raw material deposits and fertile or sparsely-populated lands. Today, as countries such as Brazil try to emulate their specifically historic growth pattern, these older industrial societies of the North, whether capitalistic, socialist or mixed, are in shock. They are almost totally unprepared for the rapid adaptations they must now make in order to survive in today's new environment and global resource conditions.

We see vivid examples in the efforts to shore up sagging resource-intensive industries such as the automotive sectors of the U.S. and British economies, while blaming the Japanese for making lighter more fuel-efficient cars. Similarly, the leaders of these stressed industrial societies urge each other to conserve energy or "reflate" their economies to blow more air into the speculative bubble of undifferentiated, GNP-measured, economic growth.

Leaders all sound alike in their expansionist, productivist approaches, re-doubling their efforts to play the old game, rather than reconceptualizing their situation and redefining their problems and goals accordingly. In most mixed industrial economies, there are two major parties offering a narrow, linear polarity of macro-economic "management" policies. On what is called "the right", there are parties, whatever their names, Republicans, Liberals, Conservatives, sympathetic to business and investors, who have their cadres of Monetarists who know how to create recessions. On "the left", there are parties, whether called Democrats, Labour, Socialist, sympathetic to labour consumers, who have cadres of Keynesians who know how to print money. Today, neither theory will work and the one-dimensional discipline of economics must give way to an era of post-economic decision-making, where policies are based on multi-dimensional, interdisciplinary approaches and far broader public participation of all groups and perspectives in society.

Leading to Mutually Assured Destruction

Today we see fearful evidence that the leaders of these crises-ridden industrial societies, instead of accommodating the necessary participation and opening up their societies to adapt to change, are rigidifying and redoubling their efforts to shore up crumbling sectors and no-longer viable institutions by trying to augment the already unresponsive, cumbersome machinery of centralized control. The crises of industrialism are exhibited by malfunctioning dinosaur technologies, bureaucratized decision-making, paralysis of over-centralization, information-handling bottlenecks, collapsing monetary and trading systems, proliferating pollution, domestic unrest, inadvertent weather and climate modification, overfished and poisoned waters, vanishing agricultural land, loss of productivity, and increasing vulnerability due to resource-dependencies.

All this has culminated in increasing militaristic confrontations over resources and the now obvious instability of the existing international system based on the contradiction of mutual deterrence; the polarization of the U.S.A. and the U.S.S.R. based on nineteenth century ideological conflict between communism and capitalism (both now better seen as forms of industrialism itself). It is now clear that such an international system based on the institutionalized mistrust between competitive, expansionist, patriarchal nation-states and their mutual threats and machismo technologies, can no longer operate on a finite interdependent, crowded planet.

One of the best indications of generalized, systemic crisis is that continuing to apply conventional control mechanisms only makes matters worse.

The case is very clear in so-called "national security" policies where mutual deterrence depends on military threat, brinksmanship, posturing and confrontation. Continuing to apply these old mechanisms to maintain even an uneasy cold-war situation is clearly MAD (an acronym for mutually assured destruction), since deterrence is based on threat, which in turn, is only believable if occasionally carried out. But even short of war, these old-fashioned threat-systems of control are now simply bankrupting the countries that employ them. Attempts to mitigate their

over economic depletion by exporting weapons, only spreads bankruptcy to other countries enmeshed in this global, no-win power game.

We see further indications of systemic crisis in applications of old control mechanisms which interact to create vicious circles such as the tragic interaction of energy and military policies. The focus on energy **supply**, rather than addressing the structure of demand, creates tragic absurdities, such as U.S. threats to defend "our" oil lifeline in the Mid-East, militarily if "necessary", but also at the cost of exacerbating domestic conflict by re-instating the military draft. Not surprisingly, therefore, a whole generation of young Americans, inculcated by advertising with the belief that their patriotic duty consisted of little more than buying a car to "See the U.S.A. in Your Chevrolet", voice misgivings and protest at the idea of fighting a war to preserve their parents' rights to drive large cars and vacation in air-conditioned motor-homes. The most obvious contradiction in all this is the even more tragic absurdity that fighting wars to defend energy supplies wastes yet more energy. War is the ultimate energy-intensive and most entropic of all human activities!

Six Transitions Occurring

Paradoxically, these goals of "certainty" and "security" are pursued with ever more desperate, destabilizing and violent technological means — all psychotically masked in the language of denial, reversal and projection: War is Peace; Big Brother bureaucracies and corporations love us and take care of us; the proliferation of nuclear warheads is for our greater security — just as George Orwell warned us in his classic work of futurism, 1984.

My own view is that we are witnessing in the crises of industrialism (and the decline of two of its over-extended empires: the U.S.A. and the U.S.S.R.) the confluence of at least six transitions:

Three are resource-based:

(1) the waning of the Age of Petroleum, a brief hundred years;

(2) the longer-term shift away from coal, uranium and other non-renewable energy for climatic, health, safety and ecological reasons;

(3) the rise of renewable-resource-based sustainable societies of the Solar Age.

The other three transitions are cultural:

(4) the saturation of the 200-year rise of industrial, productivist, mass-consumption culture and its ideology of materialistic progress and secular paradise;

(5) the exhaustion of the 300-year old Age of Enlightment, embodying the older ideas of what Pitirim Sorokin termed Sensate culture: reality is only that which can be verified by the five senses, i.e., empiricism, reductionist, manipulative technology and science motivated by fear and the desire to control the future and subdue Nature;

(6) the decline after several thousand years, of competitive, hierarchical, patriarchal institutions and nation-states, with their excessively abstract governance, exploitation by urban, metropolitan, academic elites of rural, peasant and village populations, and their expansionist goals and machismo technologies, all of which are now demonstrably leading to catastrophic imbalances at all levels.

Morphogenesis

How then are we to grasp the nature of these proliferating crises, when it seems that all of the planet's major sub-systems are becoming critically ill simultaneously, and when these processes appear to be accelerating as well? The most helpful model is that of the biological process of morphogenesis, extremely common in nature: the process, for example, by which a chrysalis turns into a butterfly.

This kind of model of change allows us to see both the breaking down of old structures and the generation of new, often radically different structures occurring simultaneously. Other characteristics of morphogenetic change are that it is systemic, affecting all parts of the system in transformations, and that these processes of change accelerate, governed by exponential, positive feedbacks which amplify the changes and push the systems over

thresholds into new states and structural forms. Morphogenetic systems are now becoming of great interest to physicists, chemists and mathematicians, as we leave the mechanistic, materialist age based on the manipulation of inorganic raw materials and move to the Solar Age, which will be based on the biological sciences. As industrial societies deal with their "trial-by-entropy", which I described in **Creating Alternative Futures** (1978), they are beginning to shift their attention from the exhausted potential of their past socio-technical configurations to see the new possibilities which are opened up by re-arranging their institutional forms and value systems.

Morphogenetic models are in dis-equilibrium constantly changing and evolving, as are all living systems. Thus, I believe that what is happening to the human species on this planet today is this kind of awesome metamorphosis of the entire Earthly biosphere, which biochemists, James Lovelock and Lynn Margulis, have termed "Gaia", after the Grecians' Earth goddess. This global metamorphosis can be seen in the altering of the Earth's atmosphere with increasing carbon dioxide levels; the mostly man-made changes in lands, oceans, and forests; as well as in the swiftly changing, unmanageable societies of human beings, their technologies and their values.

In a real sense, the whole world has changed, even in the past three years — what were once invincible dictators have been toppled; elections of governments have become "revolving-door" processes; leaders are confused and drowning in fragmented and useless data; hierarchies have become unmanageable; technologies backfire unpredictably; and great nations are challenged from within by demands for ethnic, regional, cultural and political autonomy. Many decision-makers begin to generalize their own sense of loss of control, even panic, to the rest of us. But it is not the sky that is falling — only **they** themselves who are falling from their shaky pinnacles atop crumbling, unsustainable institutions. In times of rapid change, individuals learn faster than institutions, and it is always the dinosaur's brain that is the last to get the new message.

Two-Sided Economics

We might remember that order and chaos are two sides of the same coin. For example, the crises in the world monetary system

look very different to a banker in New York or Zurich than to a finance minister of a Third World country heavily in debt. However, like most other tightly-linked systems in our crowded, interdependent world, the monetary system is so delicately interwoven it is, in fact, nothing more than an information system operating globally at computerized speed that, enmeshed in its own feedback, **requires** co-operation. Although the rules of the game were set by industrial countries, they have now transformed the system with their own technology and their belief in endless paper profit which now flout the basic laws of physics and common sense. Multinational companies can make more paper profits by trading currencies than by putting up a real factory to produce real goods anywhere in the real world, while private investors look for ever higher paper returns in short-term paper.

Those who live by the monetary illusion may die by the monetary illusion. They have mistaken money symbols for real wealth. In such a chaotic system, any significant group of Third World debtor countries could bring the whole house of cards crashing down, simply by declaring collective bankruptcy just as Germany defaulted after the first World War. Thus, there already is a "New International Economic Order", since the relationship between debtor and creditor countries is no longer hierarchical but one of mutual dependence. Debtor countries now see it is in their power to "call the bluff" of those who have controlled the monetary system, by declaring that they will no longer play the game by an outmoded set of rules that have led to imbalances now verging on disaster for all the players. Only mutual respect and re-writing the rules to fit the new facts will allow a peaceful evolution of the world's monetary and trading system. The task is to correct the inequities and imbalances perpetuated on paper, and re-write the charter of all global monetary institutions to reflect full participation of **all** actors in **all** decision-making: debtors and creditors alike!

We must also call the bluff of many **other** keepers of the old order who cannot see what is being born. They say, in effect "we have created such a dangerously unstable system that you must keep us in power since only **we** know and can manage the dangers **we** have created". One can never expect new alternatives to emerge from such dominant cultures and their elites. Those who see the **new** possibilities are usually from groups subordinated

and manipulated by the conventional wisdom. This "protection racket" style logic of the keepers of the old order must at last be debunked, if we are to see beyond it and create alternative futures for human societies.

A re-balancing of the dual-economies in societies is really the only way to reduce centralism, Big-Brotherism, bureaucracies, mindless hierarchies and bottlenecks, as well as the accumulations of power and wealth they always create. In turn, this will check expansionism, institutional aggrandizement, military adventures, technological mischief, fantasies of omnipotence and control, and the inevitable exploitation of subordinated groups and the environment. Such re-structuring of the patriarchal ordering of societies is clearly achievable.

Internal Values Are Key

Ultimately, of course, all social control systems operate at the level of language and symbol. Crucial relationships exist (often denied and rationalized) between culture and ethics and all economic/technical systems. **Value systems and ethics, far from being peripheral, are the dominant, driving variables in all economic and technological systems.**

The task facing industrial societies in the 1980's and 1990's will be to face up to the **unsustainability of their own value-systems** — rather than viewing their "problems" as external **deficiencies of nature**. This kind of "gestalt switch" away from our infantile and anthropocentric pre-occupations is prerequisite for our survival.

At the same time we must internalize the view of the indivisible human family to which we all belong both biologically and genetically: we are **one species**, with no scientific bases for the superstitious, parochial divisiveness based on minor differentiations, whether of skin colour, ethnic stock, sex or social and reproductive functions. Such an evolutionary leap in our expanding consciousness, imagination and empathy is the only potential we possess by which we can hope to counter the increasing entropy we are creating on a planetary scale. There is no reason to believe that we are a species irrevocably programmed to "self-destruct". This concerted human effort involves examining our

value-systems as clinically as we can, from psychological, biological, thermodynamic and ecological viewpoints, and then modelling the different types of behaviour outputs and "hardware" that these packages of "cultural software" produce.

For example, some cultures, such as the Balinese, the African Bushman and the Native American Nations produce very little "hardware", but have extremely elaborate, ingenious, behaviour-regulating "software" tuned to the requirements of their ecological niches. These cultures, of course, leave very little trace on the world, geared as they are to natural cycles of entropy and regeneration, so, in the arrogance of Westernized scholarship, we assume for this reason that they are "primitive". On the other end of the hardware-software scale are the North Americans, who use almost twice as much energy per capita even as Europeans, and four times the world average consumption of minerals. The U.S. value-system has produced more "hardware" and created more entropy in a shorter time-period than any other culture on the planet in its history.

Devising Workable Ethics: "Thinking Globally, Acting Locally"

To devise workable ethics for the Solar Age will require that we begin the co-operative, global task of surveying all of the world's value-systems, religious beliefs and cultures, past and present, and assessing the behavioural outputs and hardware configurations they produce. In this task we will come to appreciate that human value systems are resources, just as real as coal or oil. They are also highly-sophisticated regulatory mechanisms that put governments' cumbersome, overt regulatory efforts to shame. The traditions and myths of all cultures are the most efficient encoding of our collective historical experience. They are our "cultural DNA".

In devising principles, and ranges of the local application of them, appropriate for the coming Solar Age, we must take into account the depletion of the ecosystem, as well as natural and geological resources; and devise new criteria under these new conditions of scarcity for the "success" and "failure" of cultures. We must clarify what we **can** and **cannot** learn from history. This

new "hindsight" will also be vital in devising alternative sets of value-systems; principles of social interaction, laws, as well as the evaluation and measurement tools to monitor their behavioural outputs, and institutional and technological configurations. These quantitative and qualitative evaluations and measurements of societies and their functioning are always important and will remain so, since they provide one type of vital feedback, together with voting, local participation, as well as regional and global information and representation systems. All our societal feedback mechanisms from the face-to-face community behaviour norms and sanctions to the global bodies, principles, covenants and laws for the world's oceans, atmosphere and space, must themselves be continually monitored, improved and changed.

Networks of Change

The outlines of the ethics for the Solar Age, summed up in the edict of "Thinking Globally, Acting Locally" are visible today, not only in the principles and declarations mentioned, but in the actions of citizens in thousands of groups and networks, now linked in budding planetary coalitions.

These new effective organizations are also non-hierarchical models of how planetary co-ordination of vital functions such as environmental protection and wise stewardship of oceans, land and mineral resources can be achieved through non-bureaucratic, democratic means; through co-ordination of local, regional actions, based on agreed-upon global principles and uniformity of constraint. Models abound, from that of the international postal system, run out of a small brownstone house in Switzerland, to global telephone linkages. If even a small fraction of what is spent on armaments were channeled into the serious study and development of such global organization forms and functions, spectacular new successes would surely follow.

General formulae for the "Thinking Globally, Acting Locally" model would seem to imply keeping production, consumption and institutional participation in economic and political life as close to the local level as possible. Global information and laterally-designed communications systems of all kinds, based on user-controlled, random-access principles, and two-way repre-

sentation and reciprocity and exchange of experience, ideas and planetary learning. These, together with democratic global compacts and functional bodies, could then implement and monitor planetary agreements and treaties. Much of this new global apparatus is slowly and informally emerging in the citizen-based, non-governmental networks, which often lay the groundwork for the organizations that follow and ratify these new values.

Ethical Principles For A New World Order

Thus, in general terms, we are quite aware of the basic principles on which the New World Order must be built. Fundamentally, these principles are:

- the value of all human beings.
- the right to satisfaction of basic human needs (physical, psychological and metaphysical) of all human beings.
- equality of opportunity for self-development for all human beings.
- recognition that these principles and goals must be achieved within ecological tolerances of lands, seas, air, forests and the total carrying capacity of the biosphere.
- recognition that all these principles apply with equal emphasis, to future generations of humans and their biospheric life-support systems, and thus include the respect for all other life forms, and the Earth itself.

Historically, human development can be viewed as many local experiments at creating social orders of many varieties, but usually based on partial concepts, i.e., these social orders worked for **some** people, at the expense of **other** people, and were based on the exploitation of nature. Furthermore, they worked in the **short**-term, but appear to have failed in the **long**-term. Today, all these experiments of local and partial human development, when seen in a planetary perspective, have been failures in one way or another. They have been based on some form of short-term exploitation (de-stabilization), or the underlying ideas of human

domination of nature, the maximizing of sub-systems at the expenses of whole systems, and the recent rapid development of reductionist science and manipulative technologies. Today, we know that such societies are impossible to maintain and that the de-stabilizations on which they have built themselves are now affecting their own internal governmental stability as well as the global stability of the planet.

Scientific Principles

Interestingly, these instabilities **can** all be stated in scientific terms.

The new scientific understanding of **interconnectedness** and the fundamental process of **redistribution** are accompanied by the emerging paradigms of **indeterminacy, complementarity** and **change** as basic descriptions of nature. These five principles operate at the phenomenological level of our every-day surface realities and in our observance of nature.

These five principles emerging in Westernized science itself also imply human behavioural adaptation, learning and social principles:

• Interconnectedness	planetary co-operation of human societies
• Redistribution	justice, equality, balance, reciprocity
• Change	re-design of: institutions, perfecting means of production, changing paradigms and values
• Complementarity	unity *and* diversity, from "either/or" to "both/and" logics
• Indeterminacy	many models, viewpoints, compromise, humility, openness, evolution, "learning societies"

Basis for New World Order

Thus the New World Order can be founded both on scientific and ethical principles. We are **discovering** the New World Order in science, and since these same five principles are also found in all religious and spiritual traditions we are also remembering that we

already **know** the New World Order. Ethical principles have become the frontiers of scientific enquiry. Morality, at last, has become pragmatic; while so-called idealism has become realistic.

But it is equally clear that the needed global transformation will either occur amid increasing human resistance and social rigidity, or that it will be accommodated and encouraged by more enlightened and flexible social policies and shifts in human values and behaviour. Thus what I call "the global politics of reconceptualization" involves the emergence of pragmatic strategies, and new coalitions. This might be termed "a new proletariat": not only workers, as Marx preached, but **all people** who have been tyrannized by arbitrary symbol-systems and social designations of their roles. This group includes all the world's people whose work has not been monetized, and therefore not valued: rural, subsistence farmers, India's Harijans and other so-called lower-caste workers. It also includes ethnic peoples in all nation states who have been ghettoized in some way, such as the Native American Nations, the Aborigine of Australia, and the Ainu in Japan, who have all been driven off their ancestral lands into reservations, and who are all undervalued by discrimination because of colour, sex, race or religion.

In the same way, countries and regions have been subordinated to the tyranny of the global monetized economy and their contribution to the world's development and human culture thereby devalued. We now see in the emerging paradigms in science, that **all these issues flow from the erroneous, abstract drawing of boundaries where none exist in nature**. Yet the conscientizing of human societies of these errors is a **political** task, **requiring** that these issues and existing power centres be confronted. This planetary consciousness-raising activity must be militant but reasoned and non-violent.

Human Rights

Another key issue that is helping clarify our vision of new planetary realities is arising out of the distillation of the major ideological views of "development" that have operated since the industrial revolution (particularly in communism, socialism and capitalism and their various expressions) i.e., the growing concern for the

needs of **real human beings** and the general issues of **injustice** and **inequality**.

These concepts are illustrated in three major views of social progress:

1. The Cocoyoc Declaration's definition of "development", i.e. the development of human beings, not the development of countries; the production of things and their distribution within social systems. This is a transformation of social structures, thus entailing redefinition of the whole purpose of "development" which traditionally has confused means with ends.
2. The socialist view, based on Karl Marx's legacy, concerning the issues of oppression of groups in societies by other groups, such as the oppression of working classes by capitalists and property-owners.
3. The liberal legacy of the Enlightment; of political democracy (still often stated in arbitrary language as "one-man, one-vote") which inevitably led in the U.S.A. to Jimmy Carter's focus on "human rights" as a major policy.

Thus, lip service, at least, is now generally paid to this focus on the rights of the human being and, in our communications-rich world, few nations can ignore the public opinion sanctions against blatant violations of these human rights. Today's leaders have also experienced the double-edged sword of this human rights issue, which exposes paradoxes of injustice and oppression of minorities within their own borders. In turn, grievances such as those of the Native Americans and blacks in the U.S.A., have been pushed into the world forum of the United Nations and public opinion. Thus the general issue of all forms of arbitrary oppression is coming to the fore, as we see in Iran, where both U.S. and Soviet interference, the loss of women's rights and political freedoms, and religious fanaticism have **all** been protested.

New Coalition Needed

Today, therefore, a new type of planetary coalition must emerge to politically undergird the aspirations for the New World Order.

The meta-issues of human needs, human rights and all arbitary oppression, resting on secure scientific knowledge now emerging, provides the action formula to operationalize the ethics of the Solar Age and actualize its social expressions in a balanced, harmonious, ecologically-aligned, new World Order.

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PART III

Managing the Future

Chapter 10

New Age Economics

by Clive Simmonds

Nowhere is the contrast between the past and the future becoming more marked than in economics. During the 25 years since World War II, the theoretical neo-classical model of steady economic growth came close to being realized in actual practice. On the supply side there were no significant constraints beyond those of discovering and bringing new resources into the market in larger quantities at lower real prices, which was achieved in large measure. On the demand side there was lost purchasing to be made up, war damage to be repaired, a world awakening to the benefits of continuing economic growth and, for many years, an environment which appeared able to 'sop up' most of the by-products and wastes.

By the end of the sixties, however, the bubble had burst. As Bob Hamrin puts it so well in his book, "Managing Growth in the '80s", continued high, undifferentiated growth in a finite environment is just not possible. A new economics and new economic policies are vitally needed.

During the 1970s, economic performance has changed radically. Hamrin's thesis is that this change is a manifestation of a profound structural transformation in society itself and that the

economy of the future will be characterized by slower economic growth and changed patterns of growth. Challenging conventional economic wisdom, Hamrin suggests that the traditional sources of economic growth have become non-supportive of growth, and he examines the forces that are most critical in shaping the economy, both economic and non-economic ones. He concludes that the new realities governing economic performance demand a wholesale rethinking of economics — a reshaping of the economic paradigm fostering analysis and policy prescriptions that will meet tomorrow's objectives. Finally, he suggests that the new actions and policies should be shaped by a selective growth ethic, aimed at human resource development, and formed within the framework of a future-oriented national growth policy.

New Approach

Some aspects of the new age economics of the broader aspects of this new approach were summarized by Ray Whitman at the First Global Conference on the Future (Toronto, 1980) as follows:

- Concern with all kinds of welfare; not just with relative but also absolute scarcities.
- Man has more than material needs; therefore means must be considered as well as ends.
- Our goal is not just more possession of more things, but the capacity to love in each person, to enlarge ourselves.
- Abundant life for all people in harmony with the world.
- Each person maximizing their satisfaction with all persons (not just themselves).
- Stewardship for future generations (as *we* have received it).
- Governments and markets in harmony with other branches of life — ecology, knowledge, metaphysics.

This New Age Economics has two major hallmarks:

(1) it focusses on relationships; and
(2) it is dynamic.

It deals with today's systems in which there are constraints on the supply side and constraints on the demand side. The problem is no longer to find dynamic equilibrium rates of growth which are stable to perturbations, but to locate 'best' paths of sustainable rates of growth from one imperfectly-known and incompletely-understood situation to the next. These are systems in which the path of change helps determine the outcome, in which the forces producing change must be understood and matched against the resistances opposing change. They are non-equilibrium situations. Nevertheless, because of the constraints in society and in the economy, they may from time to time exhibit little change in an apparent but not real equilibrium.

The relational aspects of the New Age Economics need little explanation today. The relationships between technology and, more importantly, between different kinds of technology and sustainable growth still need to be worked out; but we can no longer treat them as so-called residuals from a steady state growth model at a time when growth is no longer steady but fluctuating.

Failings of Conventional Economics

Closely bound to technology is the issue of information and knowledge. It is clear that the amount of accumulated knowledge and the rate at which additions to the stock of knowledge are being made is one of the most important features of modern economics. Yet as Marc Porat has shown, information and knowledge do not appear as explicit entries in the conventional national income and expenditure accounts because these accounts are framed primarily in terms of production of goods and services, not accumulation; nor is information recognized explicitly as a product.

How, one can reasonably ask, can we talk about economic growth, using GNP as a measure, when this measure omits one of the most important and dynamic elements of growth? This raises the question of the adequacy of the conventional system of national accounts statistics as an empirical base for the 'new economics' and the problem of determining a more appropriate system of statistics.

There is an interdependence between systems of economic statistics and prevailing macro-economic theory. It is obvious that

a system of economic statistics is used to arrange the information about past events according to the concepts deemed to be important in prevailing theories. However, once a statistical system is in place and has been institutionalized, it tends to be the optic through which the future is viewed.

The main problem addressed by classical economic theory is stabilization and this theory accepted two major postulates: that the behaviour of productive agents is uniform and simple (cost minimization or profit maximization) and that human welfare functions are additive.

This body of theory is being questioned from a number of perspectives: institutionalists such as Myrdal and Galbraith have cast in doubt the simple behaviour rules attributed to the productive agents; Fred Hirsh, in his book **Social Limits to Growth**, shows conclusively that welfare functions are interdependent, not additive; furthermore stabilization has been surpassed by resources, environment, technological change, and income distribution as problems to be addressed in an acceptable theory.

The inescapable conclusion is that the conventional systems of national accounts are not adequate for this new economics. It is even doubtful whether a set of macro accounts consisting of several hundred time series can be an adequate empirical base for any economics.

New Information Needs

What then are the attributes of a statistical system capable of supporting the "New Age Economics"? A new system of national accounts is perhaps better thought of as a system of economic or socio-economic statistics which would consist of an integrated set of micro data bases. These data bases could be configured in a variety of ways or aggregated according to different classification criteria depending upon the analysis to be performed. This would, to a degree, make the systems of economic statistics independent of a particular theory which utilizes a single set of aggregation rules.

The scope of the data bases should also be enlarged and more emphasis should be placed on measuring "stocks". "Stocks" to be measured should include natural resources, land, productive capacity, produced goods held as inventories or as consumer

durables, buildings, and other infrastructure. They should be measured in physical quantity units in order to avoid assigning a unique but arbitrary valuation convention.

To the extent possible, flows should be measured in terms of physical units as well as unit prices when transactions involving currency units occur. Many flows for which there are no corresponding financial transactions which yield a price should be measured as well. Only in the last resort should physical flows be measured by deflating transactions with a price index.

The system of economic statistics should not be restricted to "static" information about stocks or flows in the past. It should contain information about "how the system works", i.e., process information. Process information does not, in spite of what most economists think, come exclusively from knowledge about past states of the system.

The systemic collection of such information about processes, combined with knowledge about discovered stocks of resources, would be a first step in addressing the issues of technology, information, and knowledge raised by the New Age Economics.

Psychology and Inflation

Harvey Wilmeth believes that, with proper planning, the exceptional productive capabilities of free enterprise economies can be utilized much more effectively. He even thinks that inflation and unemployment can be reduced at the same time, but only if a major obstacle can be overcome. That obstacle is confusion about the way free enterprise economies really work, and outdated economic theories which are still used as guides to governmental policies.

According to Wilmeth, the mainstream economic theories today fail to recognize critical psychological differences between key groups of households and business, and they fail to recognize important technical inter-relationships in the economy. He stresses the difference in psychological characteristics between wealth owners willing to risk their own net worth in investments which create jobs and advance the standard of living versus those who only want to save money and transfer the risk bearing to others. There is a limit to the debt carrying capacity of the risk

bearers. If rising interest rates and rising debt burdens transfer excessive income shares from risk bearers to creditors, a free enterprise economy tends to stagnate. The risk bearers no longer generate adequate rates of investment.

Inflation, which is the most serious problem of most capitalistic countries, takes three principal forms: the inflation of debt, the inflation of interest rates, and the inflation of prices. Wilmeth views the inflation of prices as an adaptive mechanism, which at least temporarily prevents the inflation of debt and high interest rates from causing massive stagnation or a depression. If the need for price level inflation is to be reduced, then both credit expansion and interest rates must be reduced.

The laissez-faire cure for the current economic imbalances is a prolonged depression like the 1930's. That is not politically necessary or acceptable. Better answers are needed, and better answers are available if we can clear the cobwebs out of our economic theories.

The Non-Monetarized Economies

The economies of many Third World countries cannot properly be described by a GNP-type measure since they are at least 80% traditional (or barter) economies. This has been examined by Orio Giarini whose book on "The Dialogue on Wealth and Welfare" was published as a report to the Club of Rome in October, 1980. The non-monetarized sector of the economy is where work is performed without payment, for example, in homes, in religious institutions, for voluntary organizations, etc. The imputed contribution of this sector, in a country like Canada for example, is at least one third of the GNP. So how can future economic estimates be prepared based **solely** on forecasts of the monetarized sector, with no regard at all to the contribution of the non-monetarized sectors?

I have frequently pointed out that much of the economic growth recorded for the '50s and '60s was never really there! It was only obtained by "running down" the environment and the cost of this has had to be paid for in the '70s. Also, some of the growth was not growth at all but transfer of activities from the non-monetarized sector to the monetarized sector, a process which began to reverse itself in the late '70s for those who found

themselves under-employed and were forced to adapt. These corrections have yet to be made.

Giarini also draws attention to the impact of social values. Economic effort which destroys social and cultural values cannot be counted as value added; on the contrary it constitutes value lost which must be subtracted from value added to obtain the real or net value added. He also notes that the real value of an object to society dates from the time that it is put in use to the time it is junked or recycled (the long term or survival measure), whereas the time for the entrepreneur only extends as far as the recapture or his investment plus profit, a short term measure.

The obvious conclusion is that for today and into the future we have five measures with which to evaluate economic proposals:

(i) The short-term or economic efficiency (return to the entrepreneur).

(ii) The long-term or survival effectiveness (returns to society).

(iii) The energetic or entropic aspects (husbanding our energy resources).

(iv) The ecological or planetary aspects (husbanding our environment).

(v) The human, social and cultural aspects (enlarging our humanity).

Equity and Survival

David Pollock has pointed out that while growth in Latin America has been very substantial, it has not fared so well in two other major aspects. Its vulnerability to external shocks has not disappeared as hoped. One central strategy must therefore be a delinking or more balanced relationship with the external sector and its vagaries. Secondly, Latin America must look inward. Having improved its economic efficiency, it must devote more attention in the next 20 years to the second organizing principle in societies — equity — if it wishes to maintain the third organizing principle — survival — and not become an Iran.

New Age Economics therefore inevitably finds itself concerned with issues of survival, the long term, as well as with those

of economic efficiency, the short term. The crucial link between them — equity — as related to the distribution of wealth is shown in the following chart:

The Basic Organizing Principles of Society

Efficiency	*Equity*	*Survival*
The Generation of Wealth	The Distribution of Wealth	The Continuation of Wealth

* *Wealth in this context includes money or its equivalent and how it is used, which brings in the cultural component of society.*

Value of Knowledge

To return to the subject of knowledge, it appears possible to split off the knowledge/information activities from those of producing material goods and services. The value of the latter is established in the market place. The value of knowledge and information is based on the cost of the people capable of producing it.

The competition in this case lies one step back in the educational system. Each person must optimize his investment in further education versus his talents and the apparent opportunities. As in the market place for goods, competition sorts out the competent from the less competent persons and rewards them to the extent that their skills are higher than those of others. For the first time, the educational system is thus made part of the national economic system (conventionally, it is an awkward appendage firmly believed to promote economic growth but precisely how has never been clearly demonstrated).

The resulting input-output matrix for information and knowledge would show, first, the real growth in this sector free from products and "services"; secondly, the cost to business of government demands for information and regulation and the burden of regulation itself (thus providing a measure of bureaucratic efficiency), as well as the cost of information to business itself.

The Ripple Effect of Technology

The final step is to aggregate technology into economics, a step which may now become possible.

The simplest conceptual step is to include the minimum descriptor of new technology, its S-shaped growth curve. We would thus have the simplest possible system capable of reproducing the effects of a new technology comprising two interacting industries, one a mature industry and the other an industry based on an entirely new technology which never existed before.

The combination of two industries with different characteristics means that there will be a period of maximum investment followed by increasing underinvestment until another new technology industry arrives and the cycle repeats. Such a model leads to the Mensch-type description of long waves in the economy, not to the Kondratieff description. By simplifying the elements of the model and its underlying assumptions to the minimum, the basic effects of new technology on economic development are revealed.

This raises the question as to whether all new technologies should affect economic development equally. The answer is obviously "No". How then can we differentiate technologies?

We have the following:

- New technologies have **similar** economic characteristics, e.g., novelty.
- New technology industries exhibit **similar** characteristics, e.g., their S-shaped growth and initial price declines.
- New technologies **differ** in their impact on the cost structures of other industries and/or on the time budgets of consumers; or, in different terms, there are technology multiplier effects on society as well as an economic multiplier effect.

The latter only measures the additional economic activity required **on the supply side** for the new production. The technology multiplier effects measure the economic impact **on the demand side** of the new industries brought into existence by the new technology. Thus improvements in razor blades are very welcome to their users but they do not start a new economic growth phase and they do not change the time budgets of shavers in any real sense. Television, on the other hand, created a series of ancillary industries beyond the manufacture of its basic equip-

ment, and radically changed people's habits (their time budgets). This impacted on all the other suppliers to consumers, notably on the food industry which had to enable the householder to make meals more quickly (the TV dinner).

This secondary or ripple effect through the rest of the economy explains the wide impact of certain technologies on society. Given several of these new technologies synergising together, as we know has happened in the past, their ability to initiate the long cycles of economic growth and development becomes evident; and it provides a possible method of ordering, ranking or even estimating (in orders of magnitude) different technologies. It is all part of the challenge of the New Age Economics.

New Age Economics is clearly exciting. The possibilities are enormous, the difficulties daunting. But is this a new situation? The possibility of linking the various elements described very briefly above appears real. So does the possibility of applying the results to the particularly difficult situation of today. What is required now, is to bring together the many workers in this field to see in what areas advances might most readily be made.

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Chapter 11

Technology: Fire in a Dark World

by Perry Pascarella

Pessimism is an easy game to play. After all, technological disaster does seem to be waiting in the wings at all times — nuclear bombs, melt-downs, air pollution, destruction of the ozone layer.

Unfortunately, we do not understand the specific technologies that make up our world today. What is worse, we do not understand science and technology even in general terms. We do not clearly understand how technological innovation affects our lives. More important, we don't understand that we can and do influence the course of technological progress.

Technology is us. Technology is our knowhow — not just the hardware in which it is manifested. It extends our range. It has become involved in our very evolution.

Our earliest technology — which grew through luck, inspiration, and trial and error — enabled us to be more at home on this planet and gave us the freedom to make more of ourselves. Often, we didn't understand why our useful inventions worked; we knew only that they did work. Only in the last few centuries have we developed a systematic approach to studying the physi-

cal world. We have become "scientific". Science is the systematic pursuit of knowledge of the physical world. Technology is the application of that knowledge. Both are the fruits of creativity. They may involve the creativity of one individual or the innovation effort of thousands of people working together to conceive, modify, manufacture, market, distribute, and service a product.

Slowdown in Innovation

Those doomsayers who attribute our perilous present and sometimes doubtful future to technology might welcome the news that technological innovation is slowing down in North America. Compared with the major innovations of the telephone, radio, automobile, television and airplane which were born in the late 19th or early 20th centuries, we find ourselves preoccupied today with such minor marvels as aerosol deodorants, sugar-coated breakfast foods, and electronic ping-pong.

We have done a masterful job of commercializing the major developments of World War II and the years preceding it. But this innovation effort has been essentially on the marketing side — a campaign to stimulate consumption. Now we find ourselves short on quality.

An Improved Economic Base

In fact, this slowdown in innovation is **not** welcome news. The high standard of living in North America was derived from an earlier acceptance of technology — even the demand for it! As young, resource-rich nations, the USA and Canada have generally been short of people. First in agriculture and then in manufacturing, we welcomed any idea which would increase the wealth generated per person. People can improve their productivity by sweating more (working harder) or by working "smarter" or by shifting some of the burden to machines. It is technology, then (working "smarter" and with machines), that permits us to sweat less and generate more wealth.

Technology (and we really shouldn't personify it) makes no promises of improving our lives. But it does give us the economic power to improve our lives in economic dimensions. There is no guarantee that this improvement will be widely or evenly spread

about, but the North American economic-social-political structure has supported a high degree of social mobility and unparalleled distribution of a steadily improved standard of living. Innovation has created a growing supply of things to share and the opportunity for more persons to share in their use.

Promises of Progress

As for improving our lives physically or spiritually, technology makes no promises at all. On the other hand, a society committed to science and innovation does elevate the individual and does stress freedom of inquiry which can carry over into every aspect of life.

Technology and science, therefore, can lay the foundation for a better life not only in economic terms but in terms of freedom and the appreciation of personal worth.

The reverse can be just as true. A society that turns its back on innovation and loses its spirit of inquiry may be revealing a weakened spiritual/ethic base. A society disenchanted because material benefits did not give meaning to people's lives is tempted to throw innovation aside — and physical well-being, social mobility, and freedoms along with it. A society that realizes there are limits on what it can consume and the problems it can solve may abandon its historic hope of progress.

Once, we saw the promise of making all our dreams come true through technology — wiping out illiteracy, eliminating disease, fighting crime, and so on. But those dreams haven't been realized. We have not directed technology at our most serious problems or concentrated it on making the world a better one.

After decades of spectacular defense and aerospace ventures, many of us began to feel that our aspirations were being ignored. When a nation strains daily under severe social problems but deploys its brainpower and resources to other ends, discontent and disillusionment should come as no surprise. Although we have enjoyed significant spinoff benefits from space programs and defense projects, we have still not solved the poverty problem. We have not fully attended to the energy crisis. We have not marshalled our R&D resources to fighting crime, or hunger, or disease.

We have gained economic security and multiplied our options. But this has made us even harder to satisfy. The fruits of our technology have not only elevated our expectations, they have diversified them.

Our continually expanding knowledge and capabilities change the way we view the world. This poses a threat to the individual or organization that is not resilient or adaptable. As we advance our knowledge, we change our beliefs, and we make way for a new culture. Unfortunately, the period of transition is discomforting, and many people prefer to base their culture on what's comfortable — on ignorance rather than new knowledge and capabilities.

Technological progress raises some tough questions about our culture. Do we still need a "work ethic" now that we can manufacture more and more without increasing the number of workers involved? Now that people no longer need large families to ensure help on the farm and support in their old age, must we maintain our traditional values regarding marriage and family? Now that we have "the pill" and liberated women, do we change some of our taboos regarding sex?

Our technological capability makes us ask discomforting questions about morals but not about ethics. Morals vary from culture to culture and change with time. But there are universal ethics that can still hold things together. Honesty, fairness, love, and caring are not challenged by technology.

While they pose many ethical/moral questions for us, neither science nor technology can answer some of life's most pressing questions — those that have to do with personal meaning. In fact, they do not even address these questions. It is not in their province. When science left the camp of philosophy in which it was born, its practitioners said "we will not be concerned with the questions of 'why' but will devote ourselves to the 'how' questions of the physical universe". Somewhere along the way, we either overlooked the first question or assumed that if we understood the 'how' of the universe we would not need to be concerned with 'why'.

Too Much Growth

"Haven't we had enough technology?", some people ask. They see technological advances and economic growth as twin villains.

They view them in negative terms: generating pollution, using up resources, creating inhumane systems, and straining social relationships.

Concern over growth has become a public issue. In 1972, **The Limits to Growth** report, sponsored by the Club of Rome, warned that the earth was pressing its physical limits on resources and its ability to absorb pollution. Unfortunately, this report was seized upon by the no-growth advocates as their Bible — as proof from the computer that the world was going to hell in a hurry. The finiteness of the world's resources was easy enough to grasp. Without defining what resources are or examining how technology has traditionally extended and created resources, one could expect that growing consumption would eventually strip away all the supplies. And pollution was easy enough for anyone to see first-hand. So, "Zero Growth" became a popular catch-phrase.

Not too surprisingly, however, have-not nations or have-not people were not too excited about zero growth. They still hadn't acquired **their** share of the world's wealth, health, and comfort. The responsible ones could see that a simple sharing of what is available would not cure their ills. They saw that **more** economic growth was needed. They knew their hope lay in going for a **larger** share of a growing pie.

The growth versus no-growth debate has mellowed. When we talk about growth today, we are more likely to consider rational growth as opposed to undifferentiated growth. More and more of us are coming to see the need for balanced growth — for restraint in certain areas and advances in others.

Many individuals are turning to what is called "voluntary simplicity". They buy fewer goods and select what is durable, essential, and not detrimental to the environment. This still accounts for a relatively small percentage of North American consumers today, but could become a significant influence in the life-styles of the 80's and 90's.

Too Much Risk?

It must be acknowledged that technology has brought us some undesirable products, unexpected by-products, unexpected side-effects, and undetermined long-range consequences. There seems to have been explosion of hazards in recent years. Many feel that we have been betrayed by our technology. The percep-

tion of risk is, to a large degree, the result of new knowledge and capabilities for exposing dangers and interrelationships. Our ability to detect harmful substances, for example, has improved vastly in recent years. When the Delaney Amendment was added to the U.S. Food and Drug Act in 1958, barring carcinogens in foods, we could detect chemical traces down to one part in a million. Today, we can find one part in a trillion. This means we can detect portions so small that, in many cases, they realistically pose no risk at all to human health. But the law says: "Ban them"!

What then, constitutes risk? The saccharin case brought this issue to life. When it was learned that the consumption of 800 cans of diet pop **per day** (!) might cause cancer in humans, the U.S. Food and Drug Administration was required by law to announce it was going to ban saccharin. The public leapt to the telephone and mailbox, demanding that Congress prevent the ban. Risk, we discovered, is relative. There may be risk of cancer from saccharin. On the other hand, there is definitely a risk in not having it available for diabetics and possibly for millions of overweight people. We began to hear about comparing risks and benefits of one alternative against the risks and benefits of another.

Safeguarding our health and that of our planet fires the emotions, and we often flee to worse unseen risks as we try to avoid the apparent ones. Rather than asking for a risk-benefit analysis, many take an anti-technology stance.

In fact, the more we advance our scientific and technological capabilities, the more we will be able to detect hazards and present them for proper risk evaluation. We can strengthen our ability to determine which technological innovations would be harmful to us or the environment and vice versa.

Destroying Jobs?

There is often another source of ill feeling toward technology. "It destroys jobs," people say. That observation is both right and wrong.

We react emotionally to the individual cases in which innovation eliminates a job. But we don't see that the innovation process itself has created jobs and that the new way of getting the job done may now require people with **different** skills. We may

see the number of jobs decrease in an industry like steelmaking where employment dropped by 39,000 in the decade ending in 1976 at U. S. Steel and 28,000 for Bethlehem Steel. But we don't always realize that during the same time jobs have increased elsewhere — for example, Texas Instruments added 27,000 workers; Xerox, 77,000; and IBM, 94,000!

Numerous studies show that a high technology industry or company is likely to create **far more jobs** than a low technology one, be **far more productive** in terms of output per worker, and be **more effective** in holding prices down.

As we have become more productive, the number of North Americans employed in manufacturing jobs has remained static for the past decade despite a huge increase in output. Employment has grown fast in the service industries and in government. Overall, we have added 35 million jobs to our payrolls in the last 30 years.

Since the Industrial Revolution, work has often been dehumanized, making man serve the machine or system. But, now, industry is responding to people's demands for more content in their work so they can find meaning and self-fulfillment. Whereas we once broke jobs down into repetitive, meaningless tasks, we are now trying to put them back together again in programs such as job enrichment, participative management, and humanization of the workplace. We are now using our technology to create better jobs and better working conditions. **More** technology, not the elimination of it, will improve our lot as workers.

Inhumane Systems?

The "inhumanity" or technology appears not only in the workplace but seems to be permeating our entire society. We have built layer upon layer of technological improvement on the natural world that was hostile to us. Now we must guard against failure of any of these systems. We have trapped ourselves with our own achievements. That, understandably, makes us uncomfortable.

We have also used our technology to facilitate our concentration into dense population centres. We found "economies" in large scale operations — in manufacturing, power generation, transportation. But we have intensified our interdependence on facilities and on one another, and this makes us uncomfortable.

As we look at life in more than dollars and cents terms, the economics are changing. "Economy of scale" may be an obsolete term. We may decide to use technology to make our lives simpler, less concentrated. It's up to us to call for change in direction, if we want it.

Innovations like the telephone and auto could be used personally and be fairly generally understood. But now we have big technologies. Things seem beyond our individual control — beyond our comprehension in many cases. That makes us uncomfortable. But it is **not** the systems that are inhumane. It is the people who design and use them. The nasty treatment by a sales clerk or credit department employee is **not** the fault of the computer.

Students protested against the impersonal universities in the sixties. The golden agers may soon rise up against the paperwork jungle that creates a nightmare for collecting benefits and getting medical treatment. People may go along with technologies they don't understand, but they will **not** tolerate their use by social institutions that don't meet their needs.

Overregulation

In response to these many concerns about our resources, our environment, our health, and our jobs, we have erected a mountain of restraints. For each problem or suspected problem we have laid down legislation and regulations without a cost-benefit study, without looking at the interrelationships involved, and without concern for the long-term impact of the regulations themselves.

We have papered over our goals with so many how-to rules that we have stifled creative approaches to solving our problems. We are, in effect, letting the "can't do" people push us into the future while we neutralize the "can-do" people. Regulations overlap and conflict with one another to the point where they sometimes prevent attainment of the very ends for which they are intended.

Business' natural response to this is a defensive one. Few business managers want to fight through the hearings, lawsuits, paperwork, delays and interruptions involved with pursuing new technology. They feel pressured to play it safe, to work with what

they have, to seek short-term results, to modify old products rather than venturing out to develop new ones, and to use proven manufacturing processes rather than seeking new ones that are more productive, cleaner, or safer.

We have forced business managers to become too defensive. In fact, they call some of their research and development "defensive". They aim a significant percentage of their R&D spending at avoiding lawsuits rather than developing new products or creating new industries. Planning, for many companies, has often become a matter of deciding what products or businesses to get out of.

This attitude poses the greatest risk of all. It is not compatible with the creativity we need to solve the food shortage, ease the energy crisis, improve our cities, create jobs, or improve medical care and reduce its cost.

Zero Risk

Overregulation, a poor investment climate, and corporate stagnation reflect our aversion to risk. We once mistakenly thought that technology could make our life risk-free. Now some of us think we can eliminate risk by retreating from technology. But life itself, by definition, is a risk. There is risk in any action — even in inaction.

In the last year or two, there are signs that the public is maturing — that it no longer expects guarantees of a risk-free future, or of a risk-free automobile, or risk-free foods. They are beginning to tire of over-regulation, political promises, and consumerist claims.

Despite our disappointments, technological progress has made life safer. North Americans live twice as long now as their founding forefathers did, but this has not made them immortal. Technological progress has made life easier for many, but it hasn't made life simple. The sooner we stop looking for zero risk and simple answers, the sooner we are likely to begin asking the right questions and making the benefit-risk-cost comparisons that will give us the best answers.

Partner in Evolution

Technology has become part of man's evolution. He has become a partner with nature. He is both of nature and apart from it. This

relationship is a complex one, and man is only beginning to see himself — not as the master of nature — but as a steward of the planet.

Man used the fires of technology to light the way in a dark and strange world. The more he learned, the more he became aware of the problematique — of the interrelatedness of things.

We now find that we have to take part in directing our lives and our technology. We cannot sit back unconcerned. We cannot bury our heads in despair.

In order to rationalize and democratize our technology, we have to improve our mechanisms for communicating the facts, expressing our values, and making decisions. What we have now is chaotic — politicians with foresight that seldom goes beyond the next election, voters who don't know the issues, vocal special interest groups that know how to exploit the news media, and news people who find they can make a living more easily by dividing people than by bringing them together.

We all have to participate in this partnership with one another and this stewardship of nature. The scientist owes the public an explanation of what he is doing and a sharing of his dreams. It's not enough to say, "I'm doing this for the sake of science". Science is not something apart from man. Each of us must be permitted to share the excitement of the pursuit of knowledge. At the same time, we must not expect science to bring meaning to otherwise empty lives. We must not expect it to answer questions that are outside its province.

The businessman, likewise, must demonstrate the meaning of his work. When he is dedicated only to selling a product because someone will buy it, he loses support and discredits technology. He perhaps above all, has a stewardship role to fulfill in terms of the resources he uses, the products and effluents he generates, and the social impact of both his product and his methods of operation. He must show that he is making a better world spiritually as well as physically.

No matter how hard the scientist and businessman try to share their hopes and excitement, their message cannot get through unless each of us understands a bit of the language. If we are to participate in decisions affecting our lives, we are obligated to inform ourselves of the general capabilities and limitations of

our technology and an appreciation of what science is all about. We must appreciate man's need to explore and to understand his world. We must communicate our needs, wants, and values to the scientist and businessman. And, coming full circle, they must tune in to those transmissions.

Educators must groom more humanistic technologists and a more technologically literate public. Government officials must tune in to both sides, to know not only what people want but, in the light of all that is known, what is best for them and their planet. They must allow the fires of innovation to open new frontiers and resist trying to freeze things at our present level of incapability.

Man, the creative being, has fashioned a structure in which he finds it increasingly difficult to be creative in meaningful ways. If we allow ourselves to be locked-in on today's technology, with its economies of scale, centralization, and bureaucratization, we will deny ourselves the innovation that could humanize — even personalize — our systems.

If we resist change rather than managing it, we abandon both the hope for human progress and our responsibilities as steward of the ecosystem.

If we attempt to lock up economic man for his excesses and mistakes, we imprison spiritual man along with him. As appealing and comforting as it may seem, a steady state is doomed for destruction in what Teilhard de Chardin calls "an organism that's progressing".

None of us wants to settle for a future without hope, and hope lies only in change. We must nurture and guide our technology so that change becomes the improvement that's best in long-range, global terms.

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Chapter 12

Getting over the Energy Crunch

By Joseph Barnea

How Did We Get Into the Energy Crunch?

The energy crisis, that began in 1973, has a number of roots. First, the rapid worldwide development of oil and gas resources during the 1950s and 60s by efficient oil companies reduced the prices of oil and gas. In the United States, the Phillips decision of the Supreme Court artificially held down the price of natural gas with the result that the United States' coal industry, formerly one of the biggest coal industries in the world, lost much of its market. The international oil companies went after the cheapest oil available (that of developing countries!), in effect reducing exploration in the United States and other industrial countries. This created a situation whereby, at the end of the 1960s, the countries now known as the OPEC nations had the heaviest concentration of proven oil reserves in the world and a steadily rising production at low prices.

Secondly, in the early 1970s the Club of Rome published its famous study on **The Limits to Growth**. This paper expounded a

philosophy — based on the famous (or infamous) idea of exponential growth rates — that the world is running out of natural resources. The study calculated that the world would use up its entire supply of gas and petroleum within fifty years. Although the group that wrote the report did not include among its members a single energy expert, the negative impact of **The Limits to Growth** on politicians was extremely significant.

In this atmosphere of low prices and the fear of limited resources, the OPEC countries pressed for higher royalties and higher prices starting with the Teheran agreement and ending up in a few short years with the effective governmental control of their petroleum resources, production and prices. The sharp increase in petroleum prices was politically resented in some industrial countries, and while the governments of the industrial countries could not stop OPEC from effecting price increases, they responded by putting price controls on oil in their own countries.

This prevented the expansion of energy exploration at home! With the establishment of price controls in the United States, for example, the price of heavy crude was put as low as four dollars per barrel, with the argument that this was old oil discovered before the energy crisis. This action totally disregarded the fact that heavy crude has higher production and upgrading costs than light crude but has an advantage in being available in large quantities. The oil and gas price controls also prevented **other** energy resources from being rapidly developed. This applied to every energy resource from coal to solar energy.

It took about seven years until the political leadership in Washington woke up and realized the damage to energy development at home of keeping petroleum far below the market level. By 1980, the shift in adaptation to the new price level was duly underway in all countries except Canada. Canada followed in 1981 with the National Energy Program.

The Benefit of Higher Energy Prices

The sharp increase in the price of conventional oil since 1973 has **expanded** the energy resource base. This important fact is often overlooked. What this means is that oil and other energy re-

sources, which at low prices were uneconomical to develop and produce, became economic when prices increased. For example, Alaska's Prudhoe Bay, the biggest oil field ever discovered in the United States, could not be put into operation before the energy crisis because oil prices were still only between two and three dollars per barrel. It only became operational in 1977 when prices were a great deal higher. The price effect in the case of oil applied not only to conventional oil but also to small oil fields and to the various categories of lower quality oil which are available in very large quantities, much greater than conventional or light crude. It applies, for example, to heavy crude and tar sands now being developed in Canada, the United States, Venezuela, the U.S.S.R., China and a number of other countries.

Oil shale, the most costly of the lower quality oils found in nature, has now reached the stage where heavy investments by the oil companies in the development of their oil shale deposits is taking place. Exxon's development of the Rundale deposit in Queensland, Australia, is the most prominent example.

The expansion of the resource base applies not only to the various types of oil; it applies to all energy sources because of the high energy prices now prevailing. We are thus noticing a rapid expansion, worldwide, of natural gas production, and many new types of natural gas are entering production. Most of them would have been uneconomical to develop when natural gas was still sold at ten to thirty cents per thousand cubic feet.

We now know of fourteen types of gas. In the United States seven types of gas are already being produced — namely, associated gas, non-associated gas, gas in tight sand-stone, gas in Devonian shale, gas occluded in coal deposits, gas from landfill areas and gas from biodigesters. There are many other new types of gas which will enter production in the future. The expansion of the resource base also applies to coal, with lignite, formerly neglected in most countries, now undergoing expansion in many of them. Even the lowest-grade type of coal — namely, peat — is being considered for development for a variety of energy purposes. There is also an expansion in the use of renewable energy resources, with many types of biomass entering the utilization stage and a worldwide attempt underway to use municipal, industrial and agricultural wastes for energy purposes.

The Effect of the Price Rise on Technology

The expansion of the resource base is often accompanied by new technology. Over the past ten to fifteen years there has been a tremendous expansion of both energy research and new technological development applying to practically every known type of energy resource and also to energy resources not yet in production, to energy transportation systems and to energy utilization. In this short article only a few examples can be provided.

In the case of **oil** it applies to the steadily increasing capacity to explore and develop oil and gas in deeper and deeper waters with clear indications that within a few years the oil industry will be able to produce from oil fields below as much as 10,000 feet of water. Major developments have taken place in the production and upgrading of heavy crude and tar sands, the refining of which is steadily improving, with the prospect that in the near future there will be no unusable by-products from petroleum refining.

The **coal** industry has new methods for finding coal, and new coal mining and burning methods will significantly reduce the environmental effect of coal utilization. In **geothermal** energy, a number of new production methods designed to extract a high percentage of the total energy flow are nearing perfection, and low-temperature geothermal energy is beginning to find large-scale application for heating and for agriculture and industrial processing. In **solar** energy, the steady improvement in solar cell technology, in which oil companies have invested heavily, is promising useful applications of such cells in the near future.

These are only examples of a large-scale application of new technology which is unprecedented in human history. It also promises a much greater ability in the future to find and use energy and to utilize it with higher efficiency and with a sharp reduction in energy waste.

Economic and Technical Interplay

The ongoing process of improved and increased recovery results from an interplay of economic and technical factors with three categories which need to be distinguished:

(a) In-fill drilling is a demonstration of **improved economics** alone. The in-fill drilling which now goes

on for oil and gas in many oil and gas fields is solely the result of the higher oil and gas prices. In the past, the spacing of oil and gas wells was determined by the goal of maximizing returns and therefore comparatively wide spacing among wells was prevalent. The in-fill drilling now allows recovery of oil through additional drilling for smaller quantities which would have been uneconomic in the past.

(b) Enhanced recovery, however, is a **combination of improved technology and improved economics.** As the bulk of all oil is still underground in the fields already discovered, and as petroleum production in the past has not extracted more than about thirty percent of the oil in place, the combined application of new technology and improved economics can make available vast new quantities of oil in the future. This process is now underway.

(c) The third category is potential **technological advances**. There are energy resources we know to exist but for which the appropriate production technology has not yet been fully developed. This applies, for example, to the extraction from magma chambers, which are a vast resource of high-temperature heat available in many countries, and also to gas hydrates existing in all the oceans and the perma-frost areas of the Arctic. For these and other new energy sources in our future, it is expected that the production technology will be perfected over the next five to ten years. Although massive production from these new sources may not be available for at least twenty or thirty years, we must nonetheless take into account the availability of such new sources over the long range. This is a reassuring element of some significance.

How Much Energy Do We Have?

I have argued that the sharp increase in energy prices, far exceeding the rise in cost of production, has extended the resource base,

and that new technology should allow us to develop new energy. Taking into account the expansion of our resource base, will we exhaust our energy resources in the foreseeable future? This view is expressed very often, but mostly by people who have limited knowledge of natural resources and energy resources in particular. Nonetheless, the question deserves an answer, and we had best begin with oil resources, popularly regarded as the most threatened and to date most exhausted resource of all.

Every year, estimates of recoverable conventional oil are published, and the current figures indicate that there are recoverable reserves sufficient to last only twenty or thirty years at the present annual rate of oil consumption. But what do the figures mean? The figures only tell us how much conventional oil has been precisely located through intensive drilling in specific localities and how much can be extracted at present prices and with present technology. The figures do not tell us how much oil can be extracted in the future from the same fields if prices and technology change. This is significant because, as mentioned earlier, **two-thirds of the world's oil still exists in drilled oil fields.**

Furthermore, the figures do not tell us how much oil is available for production in areas not yet explored, nor do the figures tell us anything about the potential for other types of oil which we know to exist in very large quantities. Taking into account that 71 percent of the earth's surface is covered by oceans, **it is likely that the bulk of the world's sedimentary areas have still not been explored for oil.** Even in a country like the United States, with the largest and most intensive history of petroleum exploration, more exploration needs to be done in the future than has been carried out in the past 100 years. The vast offshore areas belonging to the United States have been opened up for exploration to a very minor extent thus far. As Hollis Hedberg of Princeton University, one of the best-known petroleum geologists in the United States, recently testified in a hearing before Congress: "The fundamental thing is that, under the present system of learning, it will take four and a half centuries to get our offshore looked at."

Among other categories of conventional oil neglected in the past are small shallow oil fields, which appear to be very numerous throughout the world and have been systematically ne-

glected by the big oil companies and government organizations alike. The high price of oil has now led to a large-scale exploration and development of such small oil fields, but only in the United States at present where more than one thousand of them were discovered in 1979 alone. A 1979 report by the National Petroleum Council to the United States government pointed out that there has been a dramatic growth in new field discoveries with reserves equivalent to less than one million barrels of oil. There are also vast areas awaiting exploration in other parts of the world, and thus the era even of light or conventional crude is by no means over.

Since the increase in oil prices and the improvement in technology has now made lower quality oil economically attractive as well, we are currently in the transition from light to heavy crude. The little we know at this stage of heavy crude resources, neglected in the past, indicates that the world's supply of this lower quality oil surpasses by far the estimated demand on long-term energy resources. Venezuela submitted the first official estimate of the recoverable reserves of heavy crude in the Orinoco Belt: 500 billion barrels. This is as much as the present estimate of the **world's total proven and recoverable light crude!** The estimated cost of producing a barrel of this heavy crude and upgrading it to the quality of light crude is between five and thirteen dollars per barrel, making heavy crude exploration economically attractive today, when the world market price of light crude is over thirty dollars per barrel. But heavy crude in Venezuela is not a freak of nature; it is widely distributed and is available in many countries.

As mentioned earlier, a great deal of capital is now being invested in the development of oil shales in the United States, as well as in Australia and a number of other countries. Oil shales are widely available, but the extraction of oil from oil shales is more expensive than from heavy crude or from tar sands. It is likely, therefore, that the production of oil from oil shales, unless from high-grade oil shale, will be marginal at first, and in the United States such production might require subsidies for a certain period.

If liquid oil should remain an essential energy end-product needed for transportation, there will, in the more distant future,

be additional energy sources from which to produce such liquid fuel. Heavy investments are now being undertaken by industrial countries to finalize a technology for the conversion of coal, lignite or peat into liquid or gaseous fuels, and in a few years the first production units, as distinct from pilot and demonstration units, will begin operation. Production units already operate in South Africa, where they are required for political reasons, and although there is no doubt that the units operate in a technically reliable manner, the economics are almost impossible to evaluate. I personally believe that there will be sufficient production of oil from nature-made sources — namely, light crude, heavy crude and oil shale — so that the production of liquid fuel through coal conversion will probably not expand rapidly for some time. However, coal, lignite and peat resources are vast and the technology for their conversion is ready. It is reassuring that this source of additional oil will be available when needed. Research is also being undertaken for the conversion of **biomass** and agricultural and urban **waste** into liquid and gaseous fuel. Thus, as far as we can foresee, raw materials for the production of liquid and gaseous fuels will be available for many years to come.

Other Energy Sources

We have discussed the outlook for energy resources or raw materials for our future oil and gas needs in some detail, but this should not overshadow the increasing number and size of other energy resources. Coal, lignite and peat are available in very large quantities worldwide. The estimates for these resources are rising every year as money is being spent to find out more about them and as the economics for their utilization are improving. The same applies also to non-fuel energy resources, including hydropower; geothermal energy; the wide variety of biomass resources; the variety of ocean resources, including sea currents, wave energy, tidal power, etc.; and some totally new systems still in the research and development stage, such as magnetic electricity generation, static electricity, and, above all, energy from magma chambers and volcanoes, which could prove to be a very major resource.

What we are witnessing today is a sharp increase in the diversity of our energy resources. At a 1979 conference on

Longer-Term Energy Resources organized by UNITAR, 46 energy resources were discussed — and **there is little doubt that additional energy resources will be found and developed in the future.** In light of these developments, **the misconception that we are running out of energy sources needs a decent but final burial!**

The Process of Adaptation

As indicated earlier, many countries first reacted to the sharp increase in oil prices that began in 1973 by imposing price controls on their own production. Gradually, however, a better understanding of the oil crisis emerged and policies slowly changed in favour of diversifying energy sources and developing research and policies designed to reduce energy waste and increase energy efficiency, especially in energy-using equipment. But most important was and is the effect of high prices, which is a powerful factor both in stimulating new production and in reducing consumption and waste.

As a result of these developments, we witnessed a number of ongoing processes that are already beginning to have profound effects on the availability of energy resources. Exploration for oil and gas of every type expanded; in 1980 the United States broke the old record for exploration measured either in wells drilled or footage drilled. Exploration is also expanding for other underground energy sources, from coal to geothermal, and the exploration boom, while still fairly restricted in most developing countries, now covers much of the globe. There is also a consistent expansion in development of hydropower, solar, wind, biomass and other energy surface resources. Furthermore, as mentioned earlier, energy waste in industry has become too expensive and is being reduced; houses are being retro-fitted for energy conservation; smaller cars are becoming more numerous; and in many other ways as well, energy savings are beginning to be an economically attractive and necessary part of everyone's lifestyle.

For these and other reasons the annual growth rate of total energy consumption has slowed down, and the growth rate for oil consumption has become even smaller, with the share of oil in total energy consumption slowly but steadily declining. The decline in oil consumption is attributable partly to the replacement

of conventional oil by natural gas and coal in power stations, and to expanded production of non-fuel electricity from hydro-power, geothermal and other sources. An oil glut now exists! Over the next ten years, gasoline, the most profitable oil product of the past thirty years, faces competition from gas, methanol, gasohol, electric cars and hybrid systems, and thus, over a longer period, a reduction in the profitability of gasoline may undermine the present economics of refinery operation and indicate a structural change. The sharp increase in the consumption of coal that we are now witnessing in all industrial countries and in some developing countries and the replacement of oil in certain end-uses, as well as the factors mentioned above, are indications of basic structural changes that are now taking place and that will become clearer and more pronounced over the next ten years. As we see it, natural gas will not have a uniform world market price because of its high transport cost and, as it is available in large quantities in many countries, it will increase its share of total energy consumption, as will coal, geothermal and many although not all of the renewable energy sources.

Most countries are now trying to develop long-term energy policies designed to maximize local production and to achieve energy independence, and many of them will succeed. The primary obstacles to the diversification of energy resources, to the expansion of energy production, to the improvement of energy efficiency and to the reduction of waste, are the lack of sufficient capital, of technical know-how, or entrepreneurship and of appropriate government policy, including freer access to energy resources, and limitations of environmental restraints and delays. In most countries, attitudes and policies are already minimizing these obstacles and the outlook for increased energy production is therefore favourable, always assuming that we continue to live in peace and that there will not be major political disturbances.

When Will the Energy Crunch Be Over?

The OPEC countries, which so successfully took control of their oil resources and raised the price of conventional crude more than tenfold between 1973 and 1980, have now reached the stage where they can maintain their high prices only by restricting their

own production. Indeed, over the past few years the OPEC countries' share in world oil production has slowly but steadily declined and this decline is expected to continue.

The high prices imposed by the OPEC nations have led to a sharp increase in production by non-OPEC countries, and **each year at least one country becomes a new oil producer**. Moreover, as non-OPEC countries are under no compulsion to reduce production their output is rising rapidly, with the result that Mexico, for example, will soon surpass the oil production of Venezuela. Even the United States, burdened by a vast government bureaucracy in everything concerned with energy (which President Reagan plans to abolish) is experiencing a turn-around in oil and gas production. Exploration is increasing every year, and in 1979 the decline in natural gas production, a decline that began in 1972, was reversed, and gas production is now increasing. A gas shortage in the United States became a gas glut after new and higher gas prices were adopted on the basis of new natural gas legislation which Congress took eighteen months to approve. The new oil pricing and taxation legislation will have its effect in a few years and turnaround in U.S. oil production has already taken place.

Similar developments are taking place in many countries and thus we see the 1980s not only as a decade of expanding production of oil, gas and other energy sources, but also as a decade with a slow growth in energy consumption and a decade in which we already see the beginning of **energy surpluses**. As we see it, the influence of OPEC will begin to wane before the end of the 80s, when their share in world production will have decreased significantly and energy surpluses may be more common. By that time, assuming there are no major political disturbances, the energy crunch should be over.

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Chapter 13

Business in the Public Interest: Competition and Cooperation Can Co-exist

by Andre van Dam

A priest was speaking with God about heaven and hell. "I will show you hell", said God. They went into a room which had a delicious beefstew on a table around which sat people who looked desperately famished. They held spoons with long handles which reached into the pot, but which were too long to put the stew into their mouths. Their suffering was terrible. "Now I will show you heaven", said God, and they went into an identical room with savory stew on the table — around which sat people with identical spoons and handles. But they were well-nourished and joyous. The priest was baffled, until God said: "Quite simple! You see, these people learned to feed each other."

(Amazon legend)

Can business and government "feed each other"? Can they cooperate in a highly competitive world? These are crucial ques-

tions at a time when so many vital societal decisions are at stake; when important trade-offs are to be made. I believe that the above question can be answered with a qualified "yes". Suffice it that the prestigious **Business Week** recently devoted more than 60 pages to the need for closer cooperation between business, government and possibly labour, in order to revitalize industrialization.

Business leaders have come to similar conclusions. In an important policy speech in London, U.S. management consultant John Diebold recently made an impressive plea for a closer working relationship between industry and government. In fact he assumes that private enterprise is eminently suited to render, at a lower cost and yet at a profit, public services presently rendered by municipal, state or federal authorities.

This does not imply that such cooperation be modeled after the formula known as "Japan, Inc.". However, it is significant that when Japan's Matsushita Corporation purchases and manages a depressed part of the Motorola Company in the U.S., the new management applies various Japanese managerial techniques in welding cooperation — and with results that deeply impress other firms. And it need not run counter to the "competition" for which Milton Friedman argues so convincingly — but perhaps with some rearview mirror nostalgia — in his book **Free to Choose**. After all, business is free to choose "cooperation".

Private Enterprise in the Public Interest

The crux of the matter, to which **Business Week** and scores of other publications turn their attention, is whether private enterprise per se is in the public interest. If it is, the cooperation with which this chapter is concerned, is implicit. If it is not, such cooperation must be explicitly envisioned and woven into policy — and decision-making processes in the private and public sectors. There are economists, business leaders and politicians who agree with Professor Friedman that the only contribution a business corporation can make to the public interest (that is, to society) is to meet demand at a profit. In this perspective, only by so doing can the business corporation optimize the return on the resources it manages. This is in essence the philosophy of "the business of business is business".

However, when scanning the business journals there emerges a general proposition that business corporations are considered more and more as social as well as economic institutions. This trend seemed confirmed by a recent survey undertaken by the **Harvard Business Review**. Three fourths of the readers who took advantage of the opinion poll rejected implicitly Friedman's tenet as being out of touch with modern day reality. They tacitly seem to agree with Neil Jacoby (former U.S. President Eisenhower's economic adviser) who holds the view that there must be "an explicit recognition that corporate behaviour responds to political as well as market forces".

Business corporations which are expert in measuring and even anticipating consumer preferences, more and more attempt to gauge the mood of society with regard to the optimum role of private enterprise. One of the first attempts to do so collectively was an opinion poll conducted in 1975 by the **Harvard Business Review**. Both the questions asked and answers received must of course be viewed in the context of the then prevailing environmental conditions and business philosophy. The **Harvard Business Review** invited its readers to state their preference between two "ideologies" — one reflecting efficiency and the other reflecting equity (that means fairness, not to be confounded with equality).

Ideology one perceives society as the sum of the parts. The Protestant work ethic prevails, although without the delayed self-gratification. The struggle for life and the survival of the fittest remain the dominant traits. Property rights are sacred. So is the market mechanism, reflecting the supremacy of consumers' choices in the allocation of resources. The least government is the best government, and competition reigns supreme everywhere.

Ideology two places its trust in community life, teamwork and man's legitimate aspirations to self-fulfillment, in accord with his environment. Amenity rights are at par with property rights. A creative approach to work, blending into leisure, serves the individual as much as the community. The government coordinates the trade-off between public needs and private wants, ensuring the individual's entitlement to work, income, health and education.

It was to be expected perhaps that about 70 percent of the

readers polled preferred ideology one — but it comes as quite a surprise that also 70 percent (but not necessarily the same people) expect ideology two to prevail ten years hence. It may well reflect the ongoing search for a trade-off between efficiency and equity.

What Sort of Cooperation?

Any degree and form of co-operation requires a trade-off between the interests of the different stakeholders in the business corporation. It is therefore stimulating to read the proceedings of a roundtable organized in 1980 by Harvard University, in which 150 high-level corporate executives and civil servants, with some representatives of labour unions in attendance, reached the tentative conclusion that more and more business-labour-government dialogues are to prevail in order to vitalize America's industry in the common interest.

That this can be undertaken in the (enlightened) self-interest of the business corporation is proven by the pharmaceutical industry. Years ago, when the U.S. Food and Drug Administration banned saccharin, the manufacturers all but panicked, for they realized that they had not done their homework of evaluating the relative safety of the product. Now that the same regulatory agency is planning to restrict the use of caffeine, the pharmaceutical industry is fully equipped with scientific research — timely undertaken by the International Life Sciences Institute established **jointly** by pharmaceutical houses some time ago. This is one example of the co-operative potential of manufacturing industry in a world where private enterprise is more and more perceived to be in the public interest, as the public defines its interest.

The public interest is of course a concept which shifts with the mood of society. One of the earliest forms of cooperation between the private and public sectors was the Marshall Plan, which allocated U.S. $44 billion (in current purchasing power) of U.S. public funds. U.S. business corporations played a major role in transferring technology and management techniques to Europe, and in training their European counterparts in the U.S., thereby creating powerful European competition and a flourishing world economy.

In a not dissimilar way, man's landing on the moon was rendered possible by the U.S. National Aeronautics and Space Administration which in turn depended upon thousands of large, medium and small firms which were specifically contracted or subcontracted for this purpose. The fallout in terms of research and development in industrial and consumer goods is widely recognized as being one of the major engines of growth and innovation of the 1960s and early 1970s.

In the 1980s, the U.S. Energy, Research and Development Administration and the Geneva-based International Energy Development Agency may come to play similar roles, for private industry is eminently suited to produce and even market (in the public interest), solar, tidal, geothermical and wind energy, as well as — if public opinion would on balance prefer that solution — breeder reactors and nuclear fusion.

The European Example

Planning in the public and private sectors is generally fragmented over too large a number of institutions. This tends to fritter away the national effort or render it more costly, or both.

In the **United Kingdom**, for instance, national planning is quite haphazard and scattered. While the British Industry Act of 1975 invites private firms to exchange information so that the government may be better informed of the trends of the particular industrial sector, the government offers nothing except a vague, macro-economic five-year model made up by the Treasury and not disaggregated by product sector.

The **German** government, in contrast, will both support and finance industrial research and development. In this way, the government is aware of long-term plans of private companies, and the latter can share the risk with the government. The dialogue, although still limited to corporations of large and medium dimension, is most often shared with the representatives of labour.

The **Belgian** government considers that it is in the interest of all parties to arrive at a global industrial policy as an instrument of industrial expansion. Therefore, sectorial planning is not considered sufficient; planning must be implemented both by government and industry in as much detail as is compatible with the objective of the dialogue.

This is more important in those countries where the creation of employment becomes a major national priority. In addition, by so doing they achieve new scientific developments of higher value added, both for the home and world markets. This may entail government subsidies or other government assistance.

In the same vein, Belgian government agencies are required to collaborate by placing before private companies any project likely to stimulate their interest — within the overall plan. The interesting aspect is that small and medium companies receive almost as much attention as the large ones. In addition, the government (in conjunction with industry) sets different priorities for the home market, the industrial markets, and those of the developing countries.

In those countries where the government has established an effective Planning Bureau, it is customary to seek a relationship between the government plans and those of private enterprise. This relationship proves quite valuable in those cases where ecological constraints arise. To this end, government planning should have the same time horizon as that of private companies.

In **Italy** government planning used to be too long (ten years) and therefore ineffective. The time span has now been reduced to three years. The main purpose of Italy's three-year plan is to promote the unity of the country, that is, to bring the underdeveloped South nearer to the industrial development of the North. This is of specific interest to European multinationals operating in the Third World, where sooner or later the governments may be induced to plan likewise. In certain geographic areas government plans may aim at research and development, in others at employment creation or at birth control.

For instance, agro-industry, data-processing, aero-space industry, tele-communications, electrical equipment, and machine tools are guided by government planning in both **France** and **The Netherlands**, but smaller firms (food processing, textiles, spare parts, building materials, and the like) find more guidance from government plans in The Netherlands than in France.

That large enterprise derives more benefit from government plans than small firms, is explained in three ways. First, many government plans center around research and development, which favour technology-intensive, capital-intensive firms

over others. Second, economic sectors where strong labour unions predominate, benefit more from a three-way dialogue (government, management, labour) than sectors where labour unions play a minor role. Finally, transnational corporations which are engaged in exports and overseas investment, are uppermost in the minds of government planners — which is not the case of small firms catering to regional needs.

Benefits of Cooperation

In the light of the European experience, large and medium-size international firms could derive significant benefit from seeking an inter-relationship between company planning activities and local government planning policies which impinge on the firm. This is especially true in view of major challenges in the business environment:

(a) unemployment;
(b) competition and protectionism in the world and in the Third World;
(c) the rising need for technology (R & D);
(d) the growing socio-political implications of sound investment decisions; and
(e) the increasing need for regional planning within large countries.

Private enterprise can obviously benefit from prediction and planning mechanisms at the national level in order to cope with the dimension, time-scale and complexity of technological need in a modern, interconnected society (and world).

In short: no country can abstract itself from the world; no company can abstract itself from the business environment; no government can abstract itself from the investment plans of private enterprise. It is to their mutual advantage to know their plans and intentions. Government and industry can thus become partners in progress.

Teamwork May Solve Problems

It was significant and refreshing to read in **Fortune** magazine (June 18, 1979, page 112) that "anti-trust laws and our interpretations of them have been a major constraint for American com-

panies competing for global market share. We tend to see these things in moral terms, as if government-business cooperation were something immoral and conspirational. . . . Our adversary relationship between business and government is artificial, not natural".

One may perceive the same idea in George Cabot Lodge's book **The New American Ideology** when he exhorts business and government leaders to respond to fundamental shifts in ideology which characterize our world in transition. In his view, to accommodate what he terms the new business ethics will require altogether novel institutions capable of mixing financial aims and productivity gains with humanity's quest for self-realization and the conservation of the human environment.

In my own perception, the new business ethics, the great transition, and new age economics — or whatever labels may be attached to the changes — are all different aspects of the same search for teamwork.

Teamwork implies that common interests should override conflict interests. The new economics must be based on some degree of agreement between the principal actors on the economic scene as to the ultimate goals of society and the optimum means to reach these. The recent agreement between the government and the toy industry in Sweden to ban the sale of war toys, is one among scores of "ententes" between two erstwhile "opponents" in the market. Such teamwork rules out the smooth working of Adam Smith's invisible hand, which has been unable in this period of transition to distribute rewards and penalties, abundancies and scarcities, in a fairly equitable manner between the different stakeholders in the modern industrial society.

Business Week stresses, however, that consensus and teamwork do not rule out the traditional roles of each participant in the co-operative effort — be it the business corporation, the government or the labour union. It is not the notion of consensus which is at stake, but consensus about what. It may take considerable time and effort, for instance, to agree that the revitalization of manufacturing industry demands a major emphasis on investments (including in the infrastructure).

Such a revitalization not only requires government legislation on positive, tax free interest rates, but must also constrain

consumption in order to foment the propensity to save. In a consumer society fueled by consumer spending "outrance", the new notion of relative frugality in order to save, capitalize and invest, may be as different as the "Don't Be Fuelish" advertising slogan was from "Put a Tiger in Your Tank". Investments are not only needed for the infrastructure and capital equipment, but also for retraining and recyling manpower.

Whatever degree and shape of co-operation will be wrought between the different stakeholders of the modern business corporations, it is bound to affect the hierarchy. This refers not only to the hierarchy in terms of business-labour relationships, but also to the degree of decentralization required to adapt the corporation to societal needs, regain the entrepreneurial spirit, and resume contact between people in the enterprises and the communities within and with which the enterprise operates.

The Law Cannot Anticipate Understanding

There is certainly no dearth of "scenarios" about the future role of the business corporation in society. It may seem hazardous to submit my own scenario, and yet this chapter would be incomplete without an attempt (no matter how modest) to draw up such a scenario.

In line with the overall philosophy that "the law cannot anticipate understanding", I expect a gradual convergence of a major understanding by the public at large — preceded by the so-called educated laymen — about the ultimate aim and direction of the economy in which business-government co-operation is to play a major role. Neither legislation nor regulations by themselves can bring about (I believe) the type of business-government relationships, or business-government-labour relationships for that matter, to which this chapter has referred.

It stands to reason that one prerequisite for such co-operation is effective leadership in both private and public affairs. A type of leadership cognizant of the societal complexities and priorities. A leadership ready to subordinate national, regional or parochial aims to the wider societal goals — aptly summed up in the **Business Week** appraisal referred to earlier.

Even that kind of effective leadership may not be able by itself to revitalize the economy and society unless and until the

public-at-large becomes conscious of its own priorities — conscious of the fact that economically it cannot have its cake and eat it. The ongoing opinion polls made by Louis Harris, Elmo Roper and Daniel Yankelovich (and others) seem to indicate that in the wake of the petroleum crisis the public-at-large has been at a loss as what to expect from the overall economy. Its expectations kept on rising long after the permanency of the petroleum and other resource crises dawned upon the leadership.

As the 1980s open up, and perhaps under the impact of the ongoing economic vicissitudes, there surfaces a different public attitude. Daniel Yankelovich, a most perceptive and articulate expert gauging the changing mood of society, draws up a profile of the emerging priorities of the American public (and I would guess that those of the European public are not much different).

The overwhelming priority is to safeguard the material gains and fringe benefits conquered during the protracted period of sustained high growth which ended in the mid 1970s. In consequence, there is no broad support for any public policy involving major austerity (compared to the ongoing standard of living). On the other hand, there is sufficient awareness of the resource-induced limits to growth for the public to accept certain sacrifices (if shared by all) in the area of energy. This change of heart is to be viewed in a wider context whereby the public starts appreciating fringe benefits more than cash benefits, if only because it is felt that cash benefits are eroded by inflation, whereas fringe benefits increase the quality of life.

As reflected in California's Proposition Thirteen, the public-at-large is weary of expanding government services. It certainly wishes to strike a balance between the costs and benefits of the public and private sectors. On the other hand, the public seems in no mood to forego social entitlements distributed or ensured by the government, such as social security, medicare and retirement benefits. More importantly, as time goes on, the public distinguishes more and more clearly between essential and conspicuous consumption; between the need to save, invest and consume; and about waste. The public-at-large is not willing to make quantum jumps in its expenditure and living patterns, but is ready to make small changes which over time add up to quantum jumps.

If, through the available stream of opinion polls and their interpretations, one reads the changing public mood accurately, the 1980s may witness a growing public acceptance of the type of business-government co-operation envisioned by the expert writers and observers. To this end it seems essential to raise the level of public awareness that such co-operation is indeed "in the public interest".

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Chapter 14

The New Face of Global Politics

by Aurelio Peccei

Nowadays, the practice of Global Politics is far from the spirit and excellent motto of the First Global Conference on the Future which advocated "Thinking Globally — Acting Locally". In current politics the four concepts of "thinking", "acting", "globally" and "locally" are more often than not combined in strange or topsy-turvy ways, such as: "Acting, Not Thinking" or "Thinking Locally, Acting Globally".

While I do not belong to the world of politics, I am additionally confused since — with due respect — I tend to think that the **face** of politics can only mask its true **nature**. This confusion is even more serious when concepts such as "new" face and "global" politics are introduced, especially since today the latter is doubtless very far from what **global politics** should be.

Global Politics in a Mess

In the real world, global politics at present is in fact the sum or combination of the independent national policies of the 150-odd sovereign states on this planet. The result is quite a mess, as

anyone can see from the newspapers. The United Nations deplores this situation no less vehemently than people at the street corner and in the political arenas — particularly at election time — but very little is being done to straighten things out.

This is why, at the beginning of the 1980s, the state of the planet and the human condition are steadily worsening, despite the rhetoric of the politicians. The superpowers in particular seem determined to do their best to obtain the very worst. They are joined by other states in a competition to obtain not a sub-optimization of their collective opportunities but what I call their "sub-pessimization" on our vulnerable, already impoverished and only Earth.

At this stage, however, it is premature to draw conclusions about what new-look and real contents global politics may have in the years to come. Big games are still in progress, and their outcome is uncertain. Four major elections have recently taken place, and the change of crew may entail some changes of politics. At the time of writing, it is difficult to have a clear picture of what might happen in the West as a result of the recent elections in Japan, West Germany, the U.S. and France. Even had all the previous incumbents been re-elected for a new term, their teams and policies could not have remained the same. In the Soviet Union as well, a reshuffle of the top positions, if not a generational change, will probably occur in the near future, and with it very likely the emergence of new ideas. The situation in China is far from clear.

Imperatives for the 80s

All these events may have a marked influence on world affairs. I am one of those who hope and expect that they will. Even the most powerful leaders who are so high-placed that they miss what happens in the world beneath, cannot be so cushioned from reality that they fail to perceive the downward character of present global trends. To turn the tide, a number of fundamental acts of political will by the major protagonists is indispensable — although not sufficient.

As we impatiently wait for these internal evolutions to occur in certain key nations — and thence other nations — what should

be envisaged as new, sane and sound global politics and policies at this advanced stage of human evolution?

Myriad schemes must, of course, be devised and implemented to set humankind on a new course. It is impossible for me to outline them in the space available to me. I will limit myself to mentioning two basic imperatives.

Politics Must Be Global

The first imperative is to stop the anarchy of a multitude of disjointed, even conflictive national policies and strategies.

National policies and strategies have to be harmonized and become a coherent body of policies and strategies of worldwide scope and impact. For this to happen, national politics must acquire a new dimension so as to conflow naturally into, and form part of, global politics. Being fundamentally an optimist — at least in the sense of believing that while human stupidity is indeed great, it is not so great as to become suicidal — I am confident that **this quality jump in our governments' stance and performance is not impossible**.

For this to take place, an important role unquestionably has to be played by the pressure of world public opinion and of the committed citizens groups in the NGO's.

System Must be Made Governable

The second imperative is related to the meaning itself of politics. According to the main definition in Webster, "politics" is "the art or science of government; a science dealing with the regulations and control of men living in society". The crux of the problem is then to master this art of science: in other words, simply and plainly to make the Global System governable, and to learn how to govern it.

As a matter of fact, the complicated and interrelated global economic, political and social systems which underpin modern societies are at present **ungovernable**. They will remain so unless and until East-West confrontations are converted into actual co-operation (detente is not sufficient) and North-South relations are established on a realistic, workable basis.

As a member of The Club of Rome, I am deeply concerned

with human prospects and options. Despite the serious state of discord prevailing internationally, I am firmly convinced that the necessary factual, intellectual and psychological elements exist for the world polity and public opinion to approach these crucial East-West and North-South issues in such a way as to liberate humankind from the self-imposed shackles of non-governability.

For one thing, the way to achieve a change of hearts and minds in both East and West is a joint, **objective assessment of global situations**. This will no doubt show how the commonality of interests does indeed overwhelm any other considerations. Even in this dark moment I see light at the end of the tunnel. For another thing, to get North and South to work together for a new world order (or the oft heralded New International Economic Order), the right approach is that of **regional and interregional agreements**. This idea, old in years but now probably mature, was launched at a meeting co-sponsored by The Club of Rome at the United Nations in 1980, and obtained almost unanimous consensus.

I think it is impossible for 150 states to continue to be selfish. What The Club of Rome is proposing is a plan to try and make the South of the globe as governable as the North. In the North there are five giant communities: Western Europe, the Soviet bloc, North America, China and Japan. In the South, however, there are 120 nation states without any community. We are therefore suggesting that in areas such as East Africa, West Africa, Latin America and Southeast Asia, they should get together and try to speak with one voice.

Human Development Essential

But to attain these objectives, something even more fundamental is needed. Human systems, while not possessing the built-in homeostatic regulators and regenerative capacities of the natural system, grow ever more complicated and sophisticated. They therefore need careful handling, good stewardship, constant maintenance and expert management. And all this calls for the adequate technical **and cultural** preparation of the most precious, yet largely neglected, element in the system, namely, the human being.

It is men and women at large, the teeming populations of the planet, with their innate and still largely untapped capacity of comprehension, creativity and vision, who will ultimately be responsible for the success or failure of every human venture. If they are not overwhelmed by the magnitude of their task, however, they must learn first to be equal to the challenge — new to human experience — presented by the extra-ordinary web of problems/opportunities of this singular epoch. Without such self-improvement, humankind will never be able to govern itself or its world.

In conclusion, we cannot welcome any "New Face of Global Politics" unless such a face reflects a new, radically changed, kind of politics. Although the odds are unfavourable at this turn of history, there is still the possibility of bringing about this change. And it is up to us, instead of willingly setting the seal to our decline, to make of this decisive decade the dawn of a human renaissance. Such a process will no doubt be long, tortuous and painful. But it is certainly within the realm of possibility if we all accept the basic principles involved. Indeed, I consider it essential if a true sense of global community is to evolve.

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Aurelio Peccei *is Co-Founder and President of The Club of Rome which has sponsored such major reports as* ***Limits to Growth***, ***Mankind at the Turning Point***, *and* ***No Limits to Learning***. *This paper is an adapted and updated version of his Keynote Luncheon Address to the First Global Conference on the Future (Toronto, 1980).*

Epilogue

Where Do We Go From Here?

By Maurice F. Strong

In an overall sense, I guess it's somewhat like the old bad news/good news story. The bad news is that the end of the world is coming. The good news is — not yet. And not necessarily!

Importance of the 80s: The Bad News

What kind of future can we glimpse? Surely it is that the 1980s, the decade in which we are privileged to live, is probably the most important in the history of the human race. Many eminent scientists and researchers have clearly confirmed the fact that if we don't take the right decisions, if we don't start very well on the sane course during the next decade, that the odds of our doing so beyond it are certainly very very slim indeed.

First of all it is a dangerous period — despite the optimism of many people. I too am an optimist — optimism is the only real practical philosophy. But, to be realistically optimistic requires an acknowledgement of the fact that we do live in a dangerous era: danger of war, danger indeed of the collapse of western civilization as we know it. Incidentally, I think it is also quite clear that if

we arrogant members of the wealthy, privileged and powerful societies of the industrialized world take an objective look at history, take an objective look at what would happen if war and economic collapse — and the two might go together — did in fact occur, the rebuilding would not likely occur in any of our countries. There would be a shift of power outside of the orbit of the present industrialized world.

The conflicts within societies are escalating. It's quite clear (you don't have to be a Marxist to realize) that the slowing of growth, which has permitted all sectors of industrialized societies to gain each year a little bit more out of an expanding pie, has changed. It has also led, and will continue to lead to an increasing degree of struggle and conflicting class interests within economic societies. The dangers to the earth's biosphere and its resource systems have been very well documented. I won't go through that documentation except only to indicate that close to one-third of the world's available arable land will be destroyed in the next 20 years at a time when the population of the world will be increasing by some 50 percent. But we now perceive that the limits we face in terms of resources are not so much physical limits. There are physical limits, of course, to such renewable resources as oil. But the important limits are the limits of our own inadequacies, inadequacies of political and social will, and the inadequacies of institutions that can give effect to that will.

Poverty and hunger are probably the central issues. If we do not solve the problems of poverty and hunger, and underprivilege and inequity, the chances of avoiding the kind of conflicts that can only lead to war and economic disaster will be very slim indeed. We can already identify the dangers of a softness and debilitation that inevitably sets in to what we call successful societies. There are increasing signs of softness and debilitation in our societies today.

The breakdown of large institutions which are simply not able to adapt to change is a very real likelihood. The difficulties being experienced by Chrysler Corporation, I think, are likely to be followed by similar difficulties of many large corporations. Similar tendencies are already evident in the institutions of government. It is clear that we are moving, as we must, to less hierarchical types of institutions. Hierarchical institutions are

breaking down. Many decisions which purport to be made by large corporations can no longer be made by those corporations. And it's the same with governments. The institutions of business and government today are incapable of making decisions stick over the objections of those who are affected by those decisions and whose cooperation is necessary for their implementation.

Importance of the 80s: The Good News

On the other hand, I do believe that this is still the most exciting and promising period of human history. It is in fact possible to gain for the whole world a release from poverty and from the tedium and slavery and coercion of the kind of work that characterized the early stages of the Industrial Revolution — and still does in many developing countries. There is a multiplicity of new options for people. And surely individual freedom is a question of multiplying the options, multiplying the choices for individuals. The opportunities for this are mind-boggling; the prospects of a golden era are very real, very possible. The opportunities for new initiatives as individuals, as institutions, as businesses have probably never been greater.

Transition is the theme. We are in an important period of transition. When you're in the eye of the storm, it's often difficult to see the direction the storm is heading and to appreciate its real dynamics.

Society has become global in the true sense. If you take a look at most of the threats and positive possibilities that face us, this requires a kind of global action which no government, no group, no corporation can dictate on its own. Therefore a global system of governance is a necessity, not an option.

Universalization of Culture

Cultural nationalism is a powerful force today. On a world basis the reassertion of people's commitment to their own roots, to their own culture, is a very powerful driving force. Perhaps it is a bit paradoxical but nevertheless understandable that this comes at the very time when we are seeing a greater universalization of culture. The whole globe is overlain by a thin layer of universal culture manifest by airports, by conferences, by seminars, by

international hotels, by the music systems that instantly transport the culture of modern music around the world, and by the many other forms through which this universal culture shows itself. It's also very largely a western culture and this sets up tremendous dichotomies and conflicts within those who must live both in their traditional culture and the universal culture.

This reaction against the universalization of culture in which people want to pull back into their cultural roots is a very logical thing. It should not be seen as divisive, in my view, as it could result in a real strengthening of the units which make up national communities and the world community.

Initiatives for Action

One of the things I've learned in looking at ecological systems is that the strong systems, the healthy systems are those which preserve the maximum variety and diversity.

Surely this insight is perhaps one of the most important ones that we can bring into the processes of institution building and governance. Information networks have to be broad, complex, and even loose. Action centres, however, must be small, tight and therefore mobile, responsive and flexible. You have to differentiate between information for decision-making and action in decision-making. And the fact that you do need complex networks to inform and illuminate decision-making does not mean that these same networks can be appropriate for implementing those decisions.

What then can we do about world problems? It is always frustrating to have people describe the great global issues, the problems, and leave one with a sense of frustration and despair about what we can actually do about them. Daniel Yankelovich, in his long experience as a leading U.S. pollster, has found that people will only respond to cries of danger and crisis when someone can show them that they can actually do something about it. I think that's a very important thing for us to bear in mind.

This means we've got to look at world problems not only in terms of defining them but in terms of what we can do about them. Here I think that this vague thing that we talk about in terms of values and life styles is really the key. It really does

matter how people live. It really **does** matter what people think to be important because that's what determines the choices they make, as consumers, as voters, as citizens. We all work within a cultural and institutional context which constrains us. I've been frustrated trying to live a more ecologically sound life. I'm sure you also have been frustrated in trying to do it without opting out of the system. It isn't easy because we all do live in a system where it isn't easy **not** to have a private automobile. Life styles are important; individual action is the key. However, collective action is also necessary in a complex society.

Constructive Cultural Revolution

Changes in culture and values are essential. The competitive culture of industrialized societies is so pervasive that we who live in them think of these as the natural thing. But we have to recognize that, from a historical perspective, the Western culture which was born with the Industrial Revolution and has nourished the material progress of the West is in fact an aberration in human affairs. The pendulum must swing back towards more co-operative behaviour within national societies and internationally. Young people are showing the way by opting for less material life styles. Is this not a positive portent for the future or is it just a passing fancy? Look at how many children of senior executive officers are following or opting for pathways quite different than those that they have learned at home from their parents. This is not just rebellion. To me this is constructive revolution.

New International Economic Order Needed

The other thing we need is a whole change in our concepts of growth. The more mature industrialized societies are in many ways like the individual human being who has reached the stage of physical maturity. We still need a sound physical body, sound physical infrastructure for continued health. But to say that growth has stopped because the body is at the stage where physical growth is no longer needed would clearly be wrong. It's just as wrong for societies, once they have reached the stage where they are capable of meeting all their basic material needs, to think that they must continue the same kind of processes that

were appropriate when meeting those material needs was properly their prime objective. What we need is not the stopping of growth but changing the dynamics and the direction and the content of growth.

This calls for a new economics which requires new approaches to the kind of self-discipline we need to avoid problems such as inflation. After all, inflation is simply a breakdown at the economic level of individual and collective discipline and the attempt to shift burdens from one part of society to another. There has been a real decline in the rate of productivity growth as presently measured. But there are other kinds of productivity possible. For example, increasing bio-productivity, increasing energy productivity, conservation, the fact that you can substitute other things for capital. The tremendous revolution that's taken place in the electronic media, and in the capacity of computers and information systems has been accompanied by a reduction of energy and materials requirements. Technology can be used as a positive tool for creating the new growth society. We also must make the world economic system work for the majority of the world, for the two-thirds in the developing world. Without them it will not work. Our world system simply will not function effectively without their participation. At this moment they are signalling: "Look, we want to participate"; obviously this system of international institutions and attitudes, this system of international arrangements and treaties which now constitutes the existing system, was invented after the last War by the countries that emerged victorious from that War, and is mainly based on the perceptions and the interests of the industrialized countries. It needs changing. Such change is as much in the interest of the industrialized world as it is in the interest of the two-thirds who are calling for it. We in the industrialized world should take a hard look at our whole card. We should take a hard look at the realities of our own future self-interest and recognize that a New International Economic Order is as much a compelling necessity for us as it is for the Third World.

More Than Material Progress

And the Third World itself is in transition. We use the term "the Third World" but there are many many worlds in the Third

World: some ancient cultures from which we in the West have derived much of the knowledge and tradition that we now embrace as our own; some very new; some based on primitive cultures in our sense of that word; some already well advanced towards the transition to being industrialized countries. The countries in Latin America are among them. Brazil is a prime example. It's still very much a developing country in parts but also an industrialized country. The statistics on a country like India also often mask the fact that India is in fact one of the leading industrialized countries in the world. It may be one of the poorer developing countries of the world but it is also one of the biggest and most dynamic industrial economies in the world. In Iran, where modernization is being rejected for the moment, there is a resurgence of traditional cultures and values. We still can't predict the results. But we can learn that people in the developing world value more than just material progress. Material progress is **not** the only name of the game!

Signals to Industry

Industry, as we have seen, has learned more than any other institution in our society how to use science and technology to cater to so many of our appetites (many of them unfortunately trivial) as well as to our real needs as the advances in the field of medicine and pharmacology testify. It's not really the fault of industry if it uses its innovative power, its capital and its management to produce things that we don't think are the right things. Industry gets its signals from us, from the marketplace. And the marketplace is presumably a democratic place. If we want science and technology and industry to meet our larger societal needs and aspirations, then we must provide the appropriate signals and a system of incentives and penalties which will enable that tremendous power to be harnessed. There's no use beating the donkey. Let's just make sure it's properly harnessed and directed to do the work we want it to do. What we need is a new concept of management, a new role for those who manage. We need to conceive the role of management and managers more in terms of helping to manage the complex processes of **societal** decision-making and action by which we frame our common goals and reach those goals. "Societal" management is going to be the name of the game for managers.

New Global Systems of Governance

We all see the inadequacies of the United Nations in the present global systems of government. Essentially the inadequacies of the U.N. are products of the inadequacies of our own nation-state system; the unwillingness of nation-states to shed the kind of power upstream to the international community that is objectively needed to deal with the increasing number of global issues which can only be dealt with at an extra-national level.

The European Common Market and the emerging role of the European Parliament within it is, of course, imperfect and has not yet outgrown the constraints of the nation-state system. Nevertheless, it is a powerful step forward and an example of how unity is slowly becoming possible, even in areas which have given rise to great conflict in the past. The global level must also be supported by a whole series of non-governmental and semi-governmental organizations and processes to facilitate information dissemination, understanding and consensus on which the formal system takes its decisions.

Nation-states must understand that their role is changing and we must understand the degree to which the nations on our behalf are showing resistance to these changes. Power inevitably has to be shed both upstream and downstream from the nation-states. Hence, the paradox of seeing more power move to the international level while we're also seeing more power flow to the local, regional, provincial, and state levels. What is happening in America and Canada is not unique: the movement towards decentralization on the one hand and regionalization and globalization on the other hand. Both these movements are inexorable. It is inevitable that they will weaken the central role of the nation-state in the system of governance. It is also inevitable that such weakening will be resisted by nation-states — but not successfully in the final analysis.

People Participation Essential

In my view, a basic principle of governance is that every function in the public domain should be performed at the level closest to the people at which it can be performed effectively. Surely again we can learn from nature that the strongest biological systems are

the tight, power-concentrated cells and molecules and atoms. These are the power centers that make biological systems function and we really need to design our governance systems on this principle.

In the new society, participation will be the name of the game. Of course the 51 percent of the population who are women clearly must play a full role. I believe that the full participation by women in the processes of governance and the other processes by which our society is governed is absolutely indispensable and inevitable.

Now, participation, let's face it, means slower decision making; slower decisions but better decisions, decisions that are more likely to stick, decisions that are more likely to be the kind of decisions that people will embrace and nurture as their own. If decisions are made right everybody will think they made them, and in fact everybody will have made them.

New Ethos

The mainstream institutions of society also must accommodate the spiritual needs and hungers of people. This cannot simply be left to a few fringe institutions. I sense a real spiritual hunger behind the apathy and frustration and uncertainty of the western industrialized world today. This is one of the reasons why I am rather optimistic.

I believe the recognition that even in sophisticated industrial societies and perhaps especially in these societies, we have a deep and unfulfilled longing for expression of the essential spiritual dimensions of the human experience. Surely we must acknowledge that the highest points in the human experience have come at those times when value systems accorded the highest regard to intellectual, cultural, philosophical and spiritual dimensions of human expression.

I'm a businessman and I have a great respect for commerce. But we businessmen have to recognize that it was in the periods when the businessman was secondary that many of these great advances took place. He was always accorded a very high degree of respect, he was always necessary in society and will continue to be, but I believe we are moving out of the era where the commercial ethos which has powered our mighty industrial expansion is

going to be the dominant ethos. It will continue to be a powerful and essential motivator — I don't knock it. But, objectively, we must move into a system where business (and economics) becomes a servant of society and **not** its master.

The spiritual dimension should indeed be central to our concepts of human growth and human evolution. This surely must be based on a rediscovery and new appreciation of that which is distinctive and valuable in the mainstream of human experience, which is today represented in large part by some of the indigenous cultures. One of the things that we have to recognize is that something like 80 percent of our evolutionary experience was as hunters and gatherers. That experience, which is an essential part of man's heritage and wisdom and insight, is today in the custody of relatively small groups of indigenous people whose own lives are very much threatened. And this in turn is threatening one of the most precious heritages that is part of our total human experience. Now I'm not one of those who embraces all primitive cultures simplistically. Many of them are victims of ignorance and the lack of the kind of technological and intellectual insights that we now have. Nevertheless, they represent some very basic truths and values which we have to learn to appreciate and inculcate into our own future plans.

Indispensable Foundation For A Secure Future

The main issues for our future are security, fairness, and equity in a world system of governments which puts the **total** security package as the principle objective, and not simply the military hardware.

It is indeed an exciting time to live. What we do or don't do in the eighties will probably make a critical difference to the human future. And let us not be constrained in our visions of the future by the realities of today. I'm always confronted with how to reconcile these visions with practicality, with reality as we perceive it today. But let us remember that just as yesterday's heresies have not become today's conventional wisdom, today's impractical, impossible dreams can become tomorrow's realities.

I believe we are seeing a convergence of the physical and social worlds with the moral and the spiritual. The concepts of loving and caring and sharing which have characterized the value

systems, to which we all give at least lip service in one form or another, have long been seen by many in the industrialized world as simply frothy pious ideals that were divorced from the practical world — unrealistic.

But I submit that the evidence is that there is a convergence of the objective necessity for a saner, more co-operative world based on helping each other meet our needs, preserve our essential security, and multiply our options for positive experience, with the principles of loving and caring and sharing. These are no longer pious ideals divorced from reality. They are the indispensable foundation on which the future security system for our small planet must now be based. And that has to be good news!

* * * * * * * *

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Conclusion

Toward a Global Mind

by Frank Feather and Rashmi Mayur

As indicated in our Introduction, we believe that we have moved from Marshall McLuhan's "global village" and are now living in a "global cottage".

In reading the diverse chapters of this book, you have seen that when you open the door on one issue of the "global cottage" you simultaneously cause a draughty disturbance among a whole host of other issues. You have seen that all the inhabitants of this tiny mudball spiralling through space, our precious planet Earth, are living together in very close quarters. When one of our fellow inhabitants sneezes or goes to the bathroom, it is hard not to notice. When one of us wants to use the kitchen to prepare a meal, that person is taking food from our joint larder and is using some of our shared energy resources to cook the meal to perfection. We could go on. . . .

It is abundantly clear that a pleasant life for all the residents of the "global cottage" will only ensue if we can learn to live together. Living together in Earth's small house during the balance of this century and into the next obviously calls for a great deal of understanding of each others' viewpoints. This also calls

upon us to have a better understanding of our "selves" and our place in the overall scheme of things.

If we are to succeed in working together — to keep our "global cottage" in order — we are going to have to learn to accept our innate cultural differences and varying needs. In order to ensure we all progress together — that we all share equally — we are going to have to devise new ways of allocating, accounting for, and effectively managing the resources we have at our joint disposal. In our small "global cottage" we will be required to find a common destiny.

The kind of co-operative understanding that is necessary for us to live happily together, and to grow as one species of people, calls for an increased level of trust and an understanding of our diverse ways of thinking. We are going to have to learn to think with a common mind.

By "thinking globally" on problems of common concern, we see no reason why we cannot develop some kind of "global mind". All of the so-called problems in the world and all of our collective achievements (apart from those caused by natural events), have come from actions initiated by the processes of the human mind. It stands to simple reason that the solution to today's problems and the creation of tomorrow's opportunities must also stem from the same unique resource. We can achieve anything that we literally set our minds to. Through co-operation and by tuning in the same wavelength, we can put our heads together and attain miracles.

The world does not need saving! It has always been coming apart only to be pasted together again — ever since Adam and Eve were driven from Eden. At a time when most books about the future predict either cataclysm or an authoritarian and joyless universe, it is most encouraging that all the leading thinkers who have contributed to this book are optimistic enough to envision for our great-grandchildren a world that is bright — and realistic. Here, already, in this book, is an example of a "meeting of the minds" on the nature of the global future.

Everywhere in nature, beneath appearances, there exists an integrity far more powerful than any law that modern science has yet envisioned. This great integrity of nature demands of us something beyond mere intellectual genius. It demands virtue.

The wholeness of nature can never be seen by people who are not themselves whole. We cannot become whole and see the wholeness of nature until we see it through other people's eyes. The barrier to a harmonic global future is the collective ignorance of the limitations of our purely mental and parochial thinking.

McLuhan pointed out that we are our own television screen. Without the study of one's own mind, without self-knowledge, we become trapped in a small corner of our own brain, cut off from insights into the secrets of nature and reality. The ancients' idea of teleology, the notion that life is implicated in some form of overarching mind, cannot be grasped even by modern day computers. Plato claimed it could only be grasped by the virtuous person. Heraclitus informed the ancient Greeks that real objectivity and human integrity are nothing less than a shattering waking up from the dream of so-called knowing.

One of our major problems as conveyors of relatively good news about the future is that people tend to compare the present and the future with an ideal state rather than with the past or with a feasible state of affairs. They are simply missing the point of life. For there to be a different future for human beings there has to be a contextual shift in our way of thinking.

A beginning would be to accept that we know nothing instead of thinking we know it all. For years Buckminster Fuller has pointed out that, given the resources on this finite planet, we have the technological capacity right **now** to elevate all of humanity to a standard of living higher that the collective highest on the planet. In his latest book **Critical Path**, Fuller again takes up this campaign. He points out that 99 percent of us have been led to believe that there aren't enough resources to go around and that we are living in a highly competitive "them or us" world. He roundly asserts this is not so. We have created an abyss by misunderstanding the nature of the physical universe. "Selfishness is unnecessary and henceforth unrationalizable" he states and backs this up with specific detailed plans to implement each of his claims. Real scarcity has been vanquished and we are maintaining artificial scarcity out of sheer ignorance, he maintains, and our problems now are entirely due to wrong thinking.

Let us not continue to perpetuate history. Times have changed. We now confront the future at every corner and we are

approaching it at a speed never before experienced. Whether we realize it or not, there are less than 6500 days to the year 2000. During this period, the world which is already going through many convulsions and transformations, **must** witness further developments which will decide our destiny. The main instrument of this pioneer world development will not be science or technology, or new drugs, or even space travel. It will be the "global mind".

It is now within our collective power of human and global potential to change what might have been a grim future to one we no longer need fear. The pessimists and the enthusiastic doomsayers have had their day in court. This book has shown that although the future is uncertain, there is considerable room for optimism. We do not wish to minimize the massive global problems which it is in our mutual interest to solve. It is clear, however, that many of the preconceived notions and myths concerning the future are unfounded. In fact, we may legitimately feel good about the future. It is a time for optimism.

The world needs a more optimistic outlook. The human mind is the key to a future of unlimited potentials. The global future is right there, already waiting for us, in the collective imagination of our "global mind". We look forward to meeting you there.

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Index

Acid rain. **See**: Environment
Advertising. **See**: Mass media
Africa, 20, 172
Age composition, 21
Aging. **See**: Life expectancy
Agriculture, 24-25, 33-37, 81
Agricultural Era, 45-46
  fertilizer, 28, 34, 81
  grain, 24-25
  irrigation, 34
  See also: Environment; Food; Land
Appropriate technology. **See**: Science and technology
Aquarian Age, 85-93
Armaments, 33-34, 63, 98, 108, 114
  nuclear weapons, 4, 65, 71, 73, 76, 106, 108, 161
Asia, 21, 172
Automation. **See**: Science and technology
Automobiles, 106, 153

Belgium, 161
Biomass. **See**: Energy
Biosphere. **See**: Environment
Birth rate. **See**: Children
Brandt Commission, 29, 36
Brzezinski, Zbigniew, 85
Business, 13, 67, 98, 99, 130, 140-142, 157-167, 177, 183
  See also: Corporations; Economics

Cairo. **See**: Cities
Canada, 31, 134, 146, 147, 182
Canadian Futures Society, 3
Carbon dioxide. **See**: Environment
Change, 48, 116, 133-135
Chemicals, 63
Children, 21-23, 35, 51, 67, 96-97, 102
  birth control, 22
  birth rate, 22-24
  child-dependency ratio, 21
China, 147, 170
Cities, 27-30, 39-44, 141
  Cairo, 28
  housing, 9, 39-44
  Mexico City, 28
  Tokyo, 28
  transportation, 28, 81, 82, 139
  urbanization, 27-30, 42-43
  waste, 39, 41, 152
Club of Rome, 14, 69, 128, 137, 145, 171, 172
Coal. **See**: Energy
Common Market. **See**: European Economic Community
Communications. **See**: Mass media; Science and technology
Competition, 157-167
Complementarity, 116
Computerization. **See**: Science and technology
Conferences. **See**: First Global Conference on the Future

Consumerism, consumers. **See**: Consumption
Consumption, 26, 75, 134
Cooperation, 157-167
Corporations, 108
  multinationals, 47, 111
  transnationals, 163
  See also: Business; Economics
Creativity, 74, 134, 173
Culture, 67-69, 136, 177

Decentralization, 81
Defense. **See**: Military
Deserts, 4, 29
Developing countries, 20-21, 26, 34-36, 61, 66-67, 111, 128, 162, 163, 180-181
Dignity. **See**: Values
Diseases. **See**: Health
Drugs, 62

Ecology. **See**: Environment
Economic growth. **See**: Economics
Economic multiplier effect. **See**: Economics
Economics, 4, 12, 42, 106, 110, 123-132, 140, 148-155, 157-167, 179-180
  economic growth, 66-67, 75, 106, 124-125, 130, 137
  economic multiplier effect, 131
  economic survival, 129-130
  equilibrium rates of growth, 125
  equity, 129-130
  income, 24, 62
  investment, 131
  prices and inflation, 97, 127, 128, 166, 180
  profit, 74, 129, 158
  ripple effect, 132
  trade, 34-35
  wealth, 24, 57, 61-62, 72, 111, 127, 130, 137, 176
  See also: Business; New International Economic Order; Poverty; Unions
Education, 25-26, 46, 50, 99, 130, 143, 159
Electronics. **See**: Science and technology
Employment, 21, 23, 26-27, 42-43, 60, 72, 74-76, 127, 138-139, 141, 163
  unemployment, 71, 81, 98, 138-139
Energy, 3, 13, 43, 60, 69, 76, 81, 97, 106, 108, 113, 135, 141, 144-155, 161, 166, 180, 187
  biomass, 152
  coal, 146, 147, 148, 152
  gas, 145, 147, 148, 149
  geothermal energy, 148, 152
  hydropower, 152
  lignite, 152
  magma chambers, 152
  methanol, 154
  oil, 143, 146, 148, 149, 150, 176
  oil shale, 147
  peat, 152
  solar energy, 146, 148
  See also: Environment; OPEC
Environment, 97, 123, 126, 137, 138, 140
  acid rain, 4
  biosphere, 63, 115
  carbon dioxide, 4
  ecology, 77-78
  oceans, 150
  ozone layer, 133
  pollution, 4, 41, 137
  resources, 4, 22, 34, 60, 62, 71, 97, 123, 126, 137, 140, 189
  smog, 4
  See also: Energy
Equilibrium rates of growth. **See**: Economics
Ethics. **See**: Values
European Economic Community, 35

Family, 10, 22-23, 46, 51, 72, 112, 136
  marriage, 22, 51, 136
  parents, 51
Ferlinghetti, Lawrence, 93
Fertility, 21-22
  See also: Children
Fertilizer. **See**: Agriculture

First Global Conference on the Future, 3-5, 7-8, 14-15, 124, 169
Flow and wholeness, 90-92
Food, 3, 9, 24-25, 28-29, 31-37, 81, 141, 187
  food aid, 32-35
  World Food Council, 32-35
  See also: Agriculture; Health; Hunger
Food aid. **See**: Food
France, 162, 170
Freedom. **See**: Values

Gallup poll, 5, 86, 87
Gas. **See**: Energy
GATT, 34
General Agreement on Tariffs and Trade. **See**: GATT
Genetic engineering, 72
Geothermal energy. **See**: Energy
Germany, 161, 170
Global cottage, 7-15, 187-190
Global mind, 187-190
Global 2000 Report, 29, 68
Global village, 7-15, 187-190
Governance and politics, 13, 65-66, 67, 98, 127, 130, 158, 159, 164, 169-173, 176, 182-183
Government. **See**: Governance and politics
Grain. **See**: Agriculture
"Great Transition". **See**: Transformation

Habitat '76, 40-43
Health, 9, 21, 71, 137, 138, 140, 159
  diseases, 24, 98, 135
  malnutrition 24, 31-32
  nutrition 24-25
Housing. **See**: Cities
Human rights. **See**: Values
Hunger, 4, 31-37, 98, 135, 176
Hydropower. **See**: Energy

Income. **See**: Economics
Indeterminacy, 116
Individualism, 49
Industrial Society, 46, 75-77, 110
Inflation. **See**: Economics (prices and inflation)
Information, 47, 50, 102, 111, 125, 126, 127, 130, 178, 180
  information overload, 50
Information overload. **See**: Information
Innovation. **See**: Change
Institutions, 5, 110
Integrity. **See**: values.
Interconnectedness, 116
Intuition, 79
Investment. **See**: Economics
Irrigation. **See**: Agriculture
Italy, 162

Japan, 170
Jobs. **See**: Employment

Knowledge, 68, 79, 88-89, 97, 125, 130, 134, 136, 138

Labour unions. **See**: Unions
Land, 41-42, 126, 176
Latin America, 21, 129, 172, 181
Law, 99, 114, 138, 140, 165
Leadership, 11, 97-99, 106-107, 110, 118, 165, 170
Leisure. **See**: Values
Life expectancy, 21, 23-24
Lifestyle, 10, 71, 178
Lignite. **See**: Energy
Limits to Growth, 58, 68-69, 137, 145-146, 166
Love. **See**: Values

Magma chambers. **See**: Energy
Malaise, 67-69
Malnutrition. **See**: Health
Management, 41, 57, 139, 172, 181
Marriage. **See**: Family
Mass media, 49, 50, 142
  advertising, 49, 72
  radio, 50
  television, 50
McLuhan, Marshall, 7
Mead, Margaret, 101

Media. **See**: Mass media
Metamorphosis. **See**: Transformation
Methanol. **See**: Energy
Metropolitanization. **See**: Cities
Mexico, 155
Mexico City. **See**: Cities
Migration of population. **See**: Population (migration)
Military, 65-66, 107, 108, 112, 135, 184
See also: Armaments
Mind, 77, 80, 92, 188
See also: Global mind
Monarchy, 99
Morphogenesis, 11, 109
Multinational corporations. **See**: Corporations
Mumford, Lewis, 79, 82
Mysticism, 85, 87-91

Nature, 57
The Netherlands, 162
Networks, 114, 178
New Age. **See**: Aquarian Age
New International Economic Order, 111, 172, 179-180
New World Order, 12, 55-119, 105-119
1984, 108
Nuclear weapons. **See**: Armaments
Nutrition. **See**: Health

Oceans. **See**: Environment
OECD, 34-35
Oil. **See**: Energy
Oil shale. **See**: Energy
OPEC, 36, 145-146, 154-155
Optimism, 8-9, 10, 72, 175, 190
Organism, 77
Organization of Economic Co-operation and Development. **See**: OECD
Organization of Petroleum Exporting Countries. **See**: OPEC
Orwell, George, 108
Overcrowding. **See**: Population
Overregulation. **See**: Regulation
Ozone layer. **See**: Environment

Paradigm shift, 5
Parents. **See**: Family
Peat. **See**: Energy
Pessimism, 8-9, 12, 29, 67-69, 190
Piaget, Jean, 89
Political will, 9, 40, 72, 170, 176
Politics. **See**: Governance
Pollution. **See**: Environment
Population, 3, 4, 8, 19-30, 48-49, 72, 73, 176
growth of, 19-30, 58-60
migration, 26-27
overcrowding, 48-49, 97
Post-Industrial Society, 46-47, 61-66, 70
super-industrialism, 62-64
Poverty, 4, 24, 34-35, 57, 61, 98, 135, 176
Power, 95-103, 182
Prices. **See**: Economics
Profit. **See**: Economics
Proteins. **See**: Agriculture

Radio. **See**: Mass media
Redistribution, 116
Regulation, 140-141
overregulation, 140-141
Religion, 86-87
See also: Spirituality
"Renaissance" of traditional values, 69-70
Resources. **See**: Environment
Ripple effect. **See**: Economics
Risk, 138

School. **See**: Education
Science and technology, 12, 14, 34, 36, 50, 62-64, 71, 73, 74, 76, 89, 99, 101, 102, 110, 111, 112, 117, 125, 127, 130, 131, 133-143, 148-155, 163, 180, 181, 188, 189, 190
appropriate technology, 78
automation and computerization, 9, 46-47, 137, 180, 189
electronics, 9, 14
Service industries, 139
Smog. **See**: Environment

Social movements, 77-78
Solar energy. **See**: Energy
Soviet Union. **See**: Union of Soviet Socialist Republics
Space exploration, 14, 97, 98, 102, 114, 135, 187
Species, 71
Spirituality, 11, 74, 78, 85, 100, 183
Stress, 43-53, 78-79
Strong, Maurice, 4, 8, 14
Super-industrialism. **See**: Post-Industrial Society
Superpowers, 65-66, 67-70, 71, 170
Suprasex, 95-103
Synergy, 95-103

Tanco, Arturo, 35
Tanzania, 32
Technology. **See**: Science and technology
Television. **See**: Mass media
Thinking, 89
Third World. **See**: Developing countries
Tokyo. **See**: Cities
Trade. **See**: Economics
Trade unions. **See**: Unions
Traditional values. **See**: "Renaissance" of
Transformation, 10, 55-119, 57-70, 71-83, 108-109
  "Great Transition", 10, 57-70
Transition. **See**: Transformation
Transnational corporations. **See**: Corporations
Transporation. **See**: Cities

Unemployment. **See**: Employment
Union of Soviet Socialist Republics, 107, 108, 147, 170
Unions, 158, 164
  See also: Economics; Employment; Science and technology; Values (work ethic)
United Kingdom, 161
United Nations, 32, 182
United States, 35, 107, 108, 134, 145, 147, 170, 182
Universe, 91, 97, 100, 136
Urbanization. **See**: Cities
USSR. **See**: Union of Soviet Socialist Republics

Values, 48, 62, 67-69, 72-75, 110-119, 129, 136, 142, 178-179, 181
  dignity, 74
  ethics, 74, 112, 113, 136
  freedom, 74
  human rights, 118
  integrity, 74
  leisure, 47, 61-62, 159
  love, 74
  work ethic, 136
  See also: Family; Malaise; Religion; "Renaissance" of traditional values; Stress; "Voluntary simplicity"
Venezuela, 147, 151, 154
"Voluntary simplicity", 137

Waste. **See**: Cities
Water, 3, 4, 41
  supply, 41
Wealth. **See**: Economics
Wholeness. **See**: Flow and wholeness
Women, 3, 5, 11, 23, 45, 51, 86, 94-103, 136, 183
  education of, 22, 25
Work ethic. **See**: Values
Working conditions, 139
  See also: Employment; Unions
World Bank, 36
World Food Council. **See**: Food
World Future Society, 3

Young, Arthur, 93

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GLOBAL FUTURES NETWORK

The Global Futures Network is an International Non-Governmental Organization (INGO) incorporated under the laws of Canada as a non-profit futures research, public education, and international development organization. Bridging the gap between the twin fields of futures research and international development, the Network aims to help transform the creative ideas of the age into constructive action for a better human future. To achieve these goals, the Network carries out public information and participation programs and global development projects. It grew out of the First Global Conference on the Future held in Toronto in 1980 and is presently making plans for a Second Global Conference in India in 1984. The Network publishes the *Global Futures Digest*, a quarterly magazine; the *Global Futures Networker* newsletter; and a series of books and monographs. For more information on the Network, write to Global Futures Network, Suite 100, 26 McGill Street, Toronto, Canada M5B 1H2.